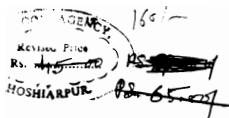

विश्वेश्वरानन्द-भारतभारती-ग्रन्थमाला—९
Vishveshvaranand Indological Series—9



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Editor — VISHVA BANDHU

भारते होशियारपुरे वि. वै. शो. सं. मुद्रायुधे ।

शास्त्रिणा देवदत्तेन, संमुद्राय्य प्रकाश्यते ॥

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Studies in Indian Cultural History

VOLUME I

BY

P. K. GODE,

M.A., D. Litt. (h.c., Paris)

D. Wijastyk
1991

होशिआरपुरम्

HOSHIARPUR

विश्वेश्वरानन्द-वैदिक-शोध-संस्थानम्

Vishveshvaranand Vedic Research Institute

प्रकाशक-संकेतः

विश्वेश्वरानन्द-वैदिक-शोध-संस्थानम्,
साधु-आश्रमः (पत्रगृहम्), होशियापुरम् (पं., भारतम्) ।



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1961



**Dr.
Parashuram Krishna
Gode**

Born : 11 July, 1891

Died : 28 May, 1961

A most pathetic interest attaches to the publication of this volume in that its learned author passed away within twentyfour hours of his having addressed his last letter in connection with it to the present writer. The letter which had been signed at and posted from Poona on 27 May, 1961, was received at Hoshiarpur on 29 May, 1961. And, in between, what an irony of this mysterious phenomenon known as 'life', our dearest Dr. Gode was declared 'no more' on 28 May, 1961 at 11.20 A. M. by the doctors attending on him in a hospital at Poona !

He had been apparently all right till the previous midnight when his heart first started giving a warning of the coming catastrophe. However, he remained quite conscious till he breathed his last, may be, without even feeling that he would not breathe any more. So, there could be no question of any thought crossing his mind at that moment except, possibly, his keen desire to hasten back to his duty by his desk. For, during the past full forty years and more, he had most implicitly been following the Vedic precept of constant activity (*Kurvānnevā kāmāṇi jījivīṣecchatam sāmāḥ*—White Yajurveda 40, 2). Yet, to paraphrase another Vedic utterance (*madhyā kārtor vitatam sām jābhāra*

—R̥gveda I, 115, 4), the Glory that was Godeji was withdrawn while the switch of Action was still on. Would that he could live longer in our midst ! But, alas, that was not to be ! The very last point to which his frame which had remained predisposed to asthma throughout could be dragged by his iron will had now been reached, irrevocably. Therefore, as the similarly grief-stricken Vedic poet, Kavaṣa had burst out (*Nā devānām āti vratām, śatātma ca nā jīvāti; Tāthā yujā vi-vāryte*—R̥gveda 10, 33, 9), we must resign ourselves to this sad bereavement which has befallen us under the inscrutable working of the Law Universal that brooks no break, not even a brake. Still how sad that this humble person to whom he was pleased only the other day to dedicate, so lovingly, this very volume, should have to prefix itself with this obituary note about him !

Collected Works of Dr. P. K. Gode

Possibly, the decision taken a decade back by his friends and admirers to present him with a Commemoration Volume on his 60th birthday had reacted on his subconscious mind in a way which led him to start collecting and editing his five hundred odd research papers towards their publication in several volumes, that is to say, to packing up and getting ready for the zero hour. However, even though he did succeed in getting the great satisfaction of seeing this huge task quite forging ahead towards its well secured consummation, he could witness only four of the volumes coming out before his eyes, the three more as in the schedule being still in the press when he closed his eyes for good.

The said seven volumes have been grouped together under two separate titles as follows: (1) Studies in Indian Literary History, Vols. I-III and (2) Studies in Indian Cultural History, Vols. I-IV. Bharatiya Vidya Bhawan has published Vols. I and II and Prof. Gode Works Publication Committee Vol. III of the former work. The V. V. R. Institute has just published Vol. I of the latter work of which the said Prof. Gode W. P. Committee has already published Vol. II and is going to publish in due course Vols. III and IV.

At present, 5-volume sets, priced at Rs. 115/- each, can be had of Vishveshvaranand Book Agency, P. O. Sadhu Ashram, Hoshiarpur (Pb. India).

V. V. R. INSTITUTE,
HOSHIARPUR.
15-6-1961.

VISHVA BANDHU

FOREWORD

I am a great admirer of Dr. Parashuram K. Gode, the learned writer of the 50 papers included in the present volume which is Volume One of his papers, grouped together for purposes of publication in a book-form under the title "*Studies in Indian Cultural History*" and Volume Four of his "*Collected Works*" now under progressive publication. During the past over four decades that he has been occupying with great distinction the Curatorial chair at the Bhandarkar Oriental Research Institute, Poona, he has set an example of ideal devotion to Sarasvati (Goddess of Learning) dedicating to her exclusive service, literally, more than one-half of every twenty-four hours that he has had at his disposal. And, all this he has done most patiently, unassumingly and silently. It is a matter of great rejoicing that the mid-night oil that he has burnt, so profusely, paying its price in maximum self-surrender, has produced an exceptionally bright light which bids fair to grow and glow for ever, bringing ever fresh glory to his name. He is at once the envy of and the beacon for the hundreds upon hundreds of the very inquisitive fellow-workers in his varied field who would fain follow in his footsteps but wonder, at every turn, how this hero of their hopes had managed to mould his pen to turn out the five centuries of his extremely learned papers.

Whenever there comes my way an occasion to go to Poona, I always feel duty-bound to make a call on this great scholar to pay my respects to him. It was in the course of one of these calls, made in 1954, that I made an offer, to which he was pleased to agree, that our Institute might publish one volume of his papers, dealing with the cultural history of our country. I am happy with the appearance of the present volume which marks the successful consummation of the necessary efforts that our Institute has since been able to make in this direction. This volume is being issued as Number Fourteen in the

Vishveshvaranand Indological Series which, besides the two other research series, namely, the *Shantakuṭi Vedic Series* and the *Woolner Indological Series*, is being run by the Institute.

I am very thankful to Shri Godeji for having been pleased to give this most welcome opportunity to our Institute to show to him by including this volume in our publication programme our greatest respect and regard for the yeoman's service he has so sincerely rendered to the cause of Indological study and research. I would also record here my greatest personal appreciation of the valuable co-operation extended by my colleagues in the Printing and the Publication Departments of our Institute towards production of this volume in proper form and according to schedule.

SADHU ASHRAM,
HOSHIARPUR,
March 5, 1961.

VISHVA BANDHU,
General Editor & Director,
V. V. R. Institute.

PREFACE

I have great pleasure in presenting to the world of scholars this fourth volume in the series of my Collected Works. It is Volume I of my *Studies in Indian Cultural History*. The first three, being Volumes I—III of *My Studies in Indian Literary History*, were published between 1954 and 1956.

In November 1954, my esteemed friend, Prof. Vishva Bandhuji, Honorary Director of Vishveshvaranand Vedic Research Institute, Hoshiarpur (Panjab) was in Poona, when he met me and inquired about the progress of the Volumes I and II of my Studies, which had been undertaken for publication in the *Singhi Jain Series* by my affectionate friend, Muni Shri Jinavijayaji, Honorary Director of Bharatiya Vidya Bhavan, Bombay. I showed him both these volumes in a completed form to his great joy and satisfaction. During our talk, he was good enough to offer to publish in the well-known *Vishveshvaranand Indological Research Series* of his Institute a volume of my studies containing the articles on the cultural history of India. I thanked him for this friendly gesture and promised to prepare the press-copy of the desired volume as soon as I was free from the work of editing Volume III of my Collected Works for which funds had been collected by my loving friends, Dr. A. D. Pusalker and Prof. N. A. Gore. This volume was subsequently published in 1956. The press-copy of the present volume was sent to Prof. Vishva Bandhuji on the 16th January, 1956. Its printing has since been steadily and satisfactorily carried out by the Printing Department of the V. V. R. Institute. My best thanks are due not only to Prof. Vishva Bandhuji but also to the workers of his Printing Department for the neat and careful printing of this volume.

The present volume contains three groups of my articles bearing on Indian cultural history, *viz.* (1) Studies in the History of Indian *Gandha-sastra* (science of cosmetics and perfumery),

(2) Studies in the History of Tambula and (3) Studies in the History of Indian Plants. Subjects like the history of Indian cosmetics and perfumery and the history of Indian plants pertain, properly, to the history of Indian technical sciences, which requires for its reconstruction close co-operation of Indologists and scientists. I owe my interest in these subjects, entirely, to my contact with two eminent scientists in India, viz. Dr. Sadgopal (now Deputy Director [Chemicals] of the Indian Standards Institution, New Delhi) and that renowned botanist, the late Dr. Birbal Sahni of the University of Lucknow. It was a fortunate moment when Dr. Sahni read my paper on the *History of the Fig* published in the *New Indian Antiquary* and wrote to me that I would be doing a great service to Indian botany if I published similar papers on other plants of medical and nutritive value. Subsequently, he met me at the time of the Science Conference in Poona and discussed with me the details of his suggested plan. I published several papers on the history of Indian plants and sent him their copies up to the moment of his sad demise some years ago. It is unfortunate that he should not be with us to see all my plant studies in the present book form. However, I record here my grateful homage to Dr. Sahni, whose contact first inspired me to carry on these studies.

In my Preface to the recently published Volume V of my Collected Works, I have given a table showing the progress of the publication of these volumes. With the publication of the present volume, five out of the six volumes mentioned in that table are now in the hands of the readers.

The sixth one is also now in the press and is expected to be out in another year through the benefaction of my esteemed friend, Prof. K.K. Handiqui (ex-Vice-Chancellor of the Gauhati University, Assam), who has further expressed his desire to help me towards the publication of one more volume. I cannot adequately thank Prof. Handiqui for this voluntary help.

I owe my academic existence entirely to the good will and active co-operation of my learned friends, who have helped me

in diverse ways in the progress of my research work and its publication during the last forty five years of my life. The volumes of my studies which have been published so far might serve as a good index to all this good will and co-operation, so lovingly extended to me. Among these scholar-friends, Prof. Vishva Bandhuji stands in the front rank by virtue of his scholarship and capacity to organise scholarship and direct it in productive channels as vouched by his unremitting toil in the cause of his Institute during the last four decades. His name "*Vishva Bandhu*" is very significant as he has proved to be a benefactor or *Kalyanamitra* of many of his scholar-friends like myself in the field of Oriental learning. Ever since my contact with him forty years ago, my esteem for his good work and high regard for the work done by his brother-workers under his inspiration has been increasing more and more. I have therefore taken the liberty of dedicating the present volume to him as a permanent token of our friendship. I know that if I had asked his permission for it, he would have hesitated and not approved of this idea owing to his being the General Editor of the *V.I.R. Series* in which this volume is being published.

Historical studies without necessary indices cannot be easily used by research scholars. It was, therefore, my good fortune when Dr. A. D. Pusalker (now Director of the Post-Graduate and Research Department of the B. O. R. Institute) and Prof. N. A. Gore (now Librarian of the Marathwada University, Aurangabad) volunteered about eight years ago to prepare elaborate indices for all the volumes. The General Index prepared by Dr. Pusalker to each of the four volumes, previously published, and to the present volume has been a very painstaking work. The Subject Index to all these volumes prepared by Prof. Gore has been equally so. I cannot adequately thank both these learned friends for this labour of love, which has enhanced the reference value of my volumes, and also for having helped me in the correction of the proofs of the present volume. Similarly, Shri S. N. Savadi of the B. O. R. Institute deserves my most grateful thanks for his voluntary collaboration in the correction

of the proofs of the present volume as also those of the previous four volumes.

In conclusion, I have to thank most cordially the authorities of the V. V. R. Institute for having accepted this volume for publication in their *V. I. R. Series*. Words fail to express my gratitude to my affectionate friend, Vishva Bandhuji for the help he has given me in all my academic work during the last forty years including the publication of the present volume.

B.O.R. Institute,
POONA. 4.
26th January, 1961.

P. K. GODE

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TO
MY ESTEEMED FRIEND
VISHVA BANDHU

STUDIES IN THE
HISTORY OF INDIAN GANDHA-SĀSTRA
(SCIENCE OF COSMETICS AND PERFUMERY)

1. Indian Science OF Cosmetics and Perfumery*

Sanskrit literature is full of references to cosmetics and perfumes that were used by ancient Indians especially during the last three thousand years for which literary sources are available for study and research. The history of the technical sciences of ancient Indians is being gradually reconstructed. The work of such reconstruction becomes easy when any regular treatises on different technical sciences written by ancient or mediaeval authors become available to research scholars for analysis and evaluation in the light of modern scientific research. The late Sir P. C. Ray, the renowned scientist of India, wrote his *History of Hindu Chemistry* in two volumes on the strength of many treatises on Indian alchemy (*rasa-vidya*). Similarly, some books have been written on Indian architecture, mathematics, painting, etc. by competent scholars. For all these books regular textual evidence about these sciences and arts was available either in the form of complete systematic treatises or in the form of summaries of their contents incorporated in Sanskrit works of the encyclopaedic type like the *Brhatsamhita* of Varāhamihira (A. D. 500), the *Manasollasa* of King Someśvara (A. D. 1130), the *Agnipurāṇa* and others. So far as I know no special treatises on Indian Science of Cosmetics and Perfumery were known to Indologists till my discovery in 1944 of two such treatises devoted to this subject.

Gandhaśāstra means the "science of cosmetics and perfumery" and *Gandhayukti* means the "art of preparing different cosmetics and perfumery." The two treatises discovered by me are (1) the *Gandhasāra* of Gaṅgādharma and (2) *Gandhavāda* (anonymous) with a commentary in Marathi, the vernacular of the Deccan to-day. I have published special articles on these treatises, which deal both with the science and art of cosmetics and perfumery. According to my evidence these treatises were composed some time between A. D. 1200 and 1600 on the basis of earlier texts, some of which are partly extant, and were composed between A.D. 500 and 1000. Subsequent to my discovery of these two treatises several Indian scholars have taken from me copies of these Sanskrit treatises with a view to editing them.

Gaṅgādharma, the author of the treatise *Gandhasāra* referred to

**International Perfumer*, 1951, No. 3, pp. 1-6.

above, defines in a beautiful stanza the scope and purpose of the Indian science and art of cosmetics and perfumery as follows :—

"This science of cosmetics and perfumery is helpful in the worship of Gods, which requires the use of auspicious perfumes and incense ; it contributes to the pleasures of men ; it leads to the attainment of three ends of human life (viz., religious merit, worldly prosperity and sensual enjoyments) ; it removes one's own poverty ; it contributes to the pleasures of kings and it gives the highest delight to the minds of accomplished ladies."

We have to understand the Indian science of cosmetics and perfumery in the light of the above remarks. I leave it to the readers of this journal to judge if they are applicable to the history of cosmetics and perfumery in Europe. At any rate they are true in respect of the use of cosmetics and perfumery in India to-day.

The manufacture and trade in cosmetics and perfumes was in a flourishing condition in ancient and mediaeval India. The celebrated collection of moral tales called the *Pañcatantra* in Sanskrit, which is about fifteen hundred years old, contains a stanza which vouches for the prosperity attained by the dealers in Cosmetics and Perfumes. I give below an English rendering of this stanza :—

"Of all trades the trade of the perfumer is the best ; other trades like those of dealers in gold etc. are of no avail. In the case of the trade in cosmetics and perfumery what one purchases for one (rupee) can be sold for hundred (rupees)."

I can vouch the correctness of these remarks from my own experience of some of the sellers of scented oils and *attars* in my school days. These sellers used to go from village to village with boxes of bottles containing scented oils and *attars* and small empty spare bottles which were used for selling these oils and *attars* to customers in villages. Pure sesame oil was poured into these small bottles. Wooden needles with cotton swabs at their ends were dipped into the different bottles of scented oils and then dipped into the bottles full of sesame oil. In this way the trader can prepare hundred bottles of scented oils for his customers, consisting generally of ladies and children. The head of the family had to pay down though reluctantly, the heavy prices of the different scents purchased in this way, not so much to please himself as to create an agreeable atmosphere in the house especially during the *Dasaharā* and *Divālī* festivals, when these sellers of scents moved about with a view to finding a sure sale for their scented goods. The scent disappeared from the purchased bottles in a few days and pure sesame oil was left behind much to the chagrin of

the head of the family who had paid cash for it rather disproportionately, if not extravagantly, from his poor purse.

The history of Indian Cosmetics and Perfumery cannot be accurately reconstructed without understanding the history of all aromatic ingredients which were used in the manufacture of cosmetics and perfumery. As many of these ingredients have medical properties they are mentioned in oldest Indian medical treatises like those of *Caraka* and *Sutruta* with their therapeutic values. The Indian *Gandhasāstra* or the science of odour (cosmetics and perfumery) is thus a part of the Indian Medical Science or *Āyurveda* (Science of life). Consequently the history of every aromatic ingredient (*gandha-dravya*) is a part of the history of *Indian Materia Medica* which has not been reconstructed scientifically in respect of each item of this *Materia Medica*. I have been studying this history of the several items of this *Materia Medica*, which comprises the history of Indian plants of medical and nutritive value, minerals and organic substances like musk, ambergris etc. The study of the history of *Indian Materia Medica* being closely connected with the history of Indian Pharmacology, is a subject of profound interest to the students of Indian Botany and Medicine alike, not to say its value for the reconstruction of the history of Indian Culture in general. In fact my studies in this direction have put me in touch with many eminent medical men, botanists, and historians of culture in India and outside. The study of the Indian *Gandhasāstra* is only one line on the spectrum of Indian Civilization, so rich with variegated streaks of culture of the different periods of Indian history from the Vedic times to the advent of the Indian Independence.

To understand the full significance of the Indian *Gandhasāstra* it is necessary for us to study the history of cosmetics and perfumery in other civilizations like those of Egypt, Babylonia, Greece and Rome. I shall feel thankful if the readers of this article acquaint me with the literary sources, especially Greek and Roman, which deal systematically with the manufacture of cosmetics and perfumery. In particular, I am eager to know if special treatises on *Gandhasāstra* were written during Greco-Roman times. If such treatises have come down to us we shall be in a position to compare them with the Indian treatises on *Gandhasāstra* viz. (1) the *Gandhasāra* and (2) the *Gandhavāda* discovered by me some years ago. Cosmetics and perfumes are as old as humanity but with the development of civilization the art of manufacturing them appears to have been developed to cater to the needs of the accomplished ladies and gentlemen of the different periods of human civilization. The manufacture of the different varieties of the cosmetics and perfumes was dependent on the

refined taste of their consumers. It is, therefore, possible to suppose that the degree of excellence and refinement of cosmetics and perfumes, current at any period of civilization, was an index of the cultural development of that period.

Indian medical literature that has survived to this day contains a few *Niṣhanṭus* or glossaries which record classified lists of medical and botanical terms. In particular they are a record of the names and properties of the important items of *Indian Materia Medica* current at different periods of Indian medical history. In these glossaries or *Niṣhanṭus*, we find a record of many aromatic ingredients used in the manufacture of cosmetics and perfumes. So far as I know a glossary entirely devoted to the aromatic ingredients (*gandha-dravyas*) has not come to light up to now. Such a glossary is, however, found as chapter III of the treatise on *Gandhaśāstra* discovered by me viz. the *Gandhasāra* by Gaṅgādhara. In this chapter the author tells us how to examine and use the several aromatic ingredients in the manufacture of cosmetics and perfumes. He classifies the aromatic ingredients in different *vargas* or classes as follows :—

- (1) *leaves* — Holy Basil leaves etc.
- (2) *flowers* — Saffron, *campaka* flowers, clove etc.
- (3) *fruits* — Pepper, nutmeg, cardamum etc.
- (4) *barks* — Bark of camphor tree, bark of clove tree etc.
- (5) *woods* — Sandal wood, fir wood etc.
- (6) *roots* — Nut-grass (*cyperus rotundus*) *pavonia odorata* (*Vala*) etc.
- (7) *exudations from plants* — Camphor etc.
- (8) *organic products* — Musk, honey, lac, ghee etc.

The eight-fold classification of aromatic ingredients given by Gaṅgādhara will be found sufficiently intelligent, if not scientific according to modern standards. At any rate it justifies the statement of Gaṅgādhara that he is a *Kovidā* or expert in the science of cosmetics and perfumery, which he describes as "difficult to comprehend, vast in its scope, and consisting of materials of a scattered nature." He further states that he has compiled his treatise on the basis of earlier treatises or texts, which unfortunately he does not name.

One of the objects of the *Gandhaśāstra* according to Gaṅgādhara is the use of perfumes in the worship of gods. Consistent with this religious back-ground of the *gandhaśāstra* there is a presiding deity for this science of cosmetics and perfumes. At the commencement of his treatise Gaṅgādhara bows to four deities viz. (1) Śiva (2) Gaṇapati (3) *Sarasvatī* (the goddess of learning and arts) and (4) *Gandharva*

Yakṣa or *Gandha Yakṣa*, a demi-god attending upon God *Śiva*. I have not come across any reference to the demi-god of the name "*Gandha Yakṣa*" the presiding deity of *Gandhaśāstra* specifically mentioned by Gaṅgādhara in his treatise. The science of perfumes is, however, semi-divine as the perfumes have the power to put us in a good frame of mind and lift us at least temporarily from the worries of this world. All lovers of perfumes will, therefore, welcome whole-heartedly Gaṅgādhara's belief in a "*Gandha Yakṣa*" as the presiding deity for the science of cosmetics and perfumes.

Gaṅgādhara's treatise on cosmetics and perfumes contains three chapters on the following topics :—

Chapter I — This chapter explains technical processes and terminology of *Gandhaśāstra*.

Chapter II — This chapter gives in detail the recipes for the manufacture of different perfumed products such as perfumed waters, oils, sticks, powders, incense etc.

Chapter III — This chapter gives a classified glossary of aromatic ingredients to be used in the manufacture of cosmetics and perfumes.

I have already dealt with the importance of *Chapter III*. The detailed recipes given in *Chapter II* are meant for the manufacture of perfumed products, many of which are used in India to-day. They are too many to be specified in this article. The Sanskrit technical terminology of the *Gandhaśāstra* given in *Chapter I* will not be of much interest to the laymen. I must, however, mention here some of the processes of the manufacture of cosmetics and perfumes mentioned by Gaṅgādhara. The six processes mentioned by Gaṅgādhara are as follows :—

- (1) *Bhavana* — Infusing or saturating powders with fluid.
- (2) *Pacana* — Ripening or decoction of materials after they have undergone the process of infusion (No. 1 above)
- (3) *Bodha* — Reviving the scent of a perfume with the help of aromatic ingredients acting as reviving agents.
- (4) *Vedha* — This process is a further development of No. 3 above. As the verses describing the process are textually defective I am unable to understand it properly.
- (4) *Dhāpana* — Fumigating with aromatic vapours of incense etc.
- (6) *Vāsana* — Scenting with the perfumes of flowers etc.

It would appear from what I have said so far about the three chapters of Gaṅgādhara's treatise on *Gandhaśāstra* that this treatise is an attempt

to systematise in a compact form the theory and practice of *Gandhaśāstra* developed in India through centuries of Indian political and social history.

As Gaṅgadhara's treatise on *Gandhaśāstra* is meant mainly for the manufacturer of cosmetics and perfumery we cannot find in it observations on any subtle topics connected with *Gandhaśāstra* such as the following :—

- (1) Origin of odour (*Gandha*).
- (2) Nature of *Gandha*.
- (3) *Gandha* in relation to sex and society.
- (4) Classification of odours (*Gandhas*).

It is possible to find scattered observations on these topics in Sanskrit literary sources. In fact I have kept these topics in mind for future study and investigation. The rich odour of the references to *Gandhaśāstra* in literary sources attracts me, but I am unable to enjoy it like the bee in the thicket of golden buds of *Ketaki* blinded by dust and helpless in his efforts to live in it or move about owing to the loss of his wings cutoff by the prickles on the buds.

2. History of Ambergris in India*

Between about A.D. 700 and 1900

The history of Indian cosmetics and perfumery has not yet been critically reconstructed though materials for such a history are found in abundance in several Sanskrit and Prakrit texts. I have discovered two treatises on *Gandhaśāstra* (Science of cosmetics and perfumery) and have published some papers¹ on these treatises as also others bearing on the history of Indian cosmetics and perfumery. Recently a learned Jain scholar, Muni Punyavijayaji of Ahmedabad, requested me to answer the following query :—

"Malayagiri, a Jain commentator of the 12th cent. A. D. mentions a perfume or aromatic ingredient of the name *ambara* along with *aguru* (aloe-wood or agallochum), *karpūra* (camphor) etc. burnt as incense. References to *ambara* as a perfume are rarely found in literature. What is, therefore, the nature and properties of *ambara* mentioned by Malayagiri in the 12th century A. D.?"

It is true that references to *ambara* in the sense of an aromatic ingredient are very rare in Sanskrit or Prakrit literature. The Sanskrit lexicons listed on the following page record the term *ambara* in the sense of a perfume or aromatic ingredient.

The Sanskrit lexicon of Amara (between A. D. 500 and 800) records the term *ambara* in the sense of sky, etc. but not as a perfume. The Sanskrit word *ambara* is phonetically similar to the Arabic word *anbar* for *ambergris*. It is possible to suppose that the Arabs or Mussulmans introduced *ambergris* into India sometime before A. D. 1000. This rich perfume became popular in India in a short time, and Sanskrit lexicographers instead of recording *anbar* as an Arabic word confused it with the already existing Sanskrit term *ambara*, which meant *sky* or *garment*. Consequently these lexicographers added an additional meaning, viz. *perfume* to the original Sanskrit word *ambara* so that all the lexicons composed after the introduction of *ambergris* into India took care to explain *ambara* as a perfume or aromatic ingredient as will be seen from the table given below. The last of the lexicons in this table, viz. the

**Chymist*, Vol. II, 51.

1. *Journal of the University of Bombay*, Sept. 1945, pp. 44-45, and *New Indian Antiquary*, Vol. VII (1945), pp. 183-193.

Rajavyavahāra-Kośa (A. D. 1676) records *ambara* as an Arabic word and not as a Sanskrit word, as this lexicon is partly a record of Persian and Arabic terms current in the Deccan during the reign of the Maratha King Śivājī the Great, by whose order it was composed for court use. There is no word for *amberggris* in Sanskrit. Prof. Dalgado² observes that "Perhaps the word (*ambar*) was imported directly from Arabic." He also points out that in many vernaculars of India the term *ambar* for *amberggris*

Chronology	Lexicon	Reference
Between A.D. 700 & 1000	<i>Śālvata-Kośa</i>	Ambara is called
A.D. 1111	<i>Trikāṇḍa-śeṣa</i>	<i>Sugandhi-dravya</i>
A.D. 1100-1200	<i>Viśva-Kośa</i>	<i>gandha-dravya</i>
c. A.D. 1250	<i>Nanārhāṇava-Saṅkṣepa</i>	<i>sugandhaka</i>
Between A.D. 1175 & 1434	<i>Medini-Kośa</i>	<i>Sugandhidravya</i>
Between A.D. 1300 & 1600	<i>Anekārthatilaka</i>	<i>Sugandhi</i>
c. A.D. 1685	<i>Viśvalocana-Kośa</i>	<i>Surabhi dravya</i>
c. A.D. 1676	<i>Śabdaratna-saṃanvaya-Kośa</i>	<i>Sugandhaka</i>
	<i>Rajavyavahāra-Kośa</i>	<i>Matsyika</i> (product from a fish) and included among perfumes like musk, etc.

is still current. The Latins call it *ambarum*. Some other nations and languages give it the same name or one with very slight variation.

The following references to *amberggris* in non-Sanskrit sources are of interest :—

(1) John Marshall³ in his account of India (A.D. 1668-72) refers to *amberggris* at Mauritius and at Johanna. He says "What this is hath not yet been perfectly knowne."

(2) J. Fryer⁴ (A.D. 1672-1681) in his account of East India and Persia refers to *ambergreece* as a precious article of trade within the charter of the East India Company and states that grey *amberggris* is the best and that it yields a fragrant odor and feels in substance like beeswax.

2. *Portuguese Vocables in Asiatic Languages*, English Trans. by A. X. Soares, G. O. Serren, Baroda, 1936, p. 15.

3. *John Marshall in India*, Oxford University Press, London, 1927, pp. 48 and 415.

4. *Fryer's Travels*, Hakluyt Society, London, 1912, Vol. II, p. 142.

(3) *Ain-i-Akbari*⁵ (A.D. 1590) refers to the "preparations of *ambergris*" with which the presence chamber of Emperor Akbar was fumigated constantly. This work mentions three theories about the origin of *ambergris* :—

"Some say that it is produced in the bottom of the sea; others make it to be the dung of the sea-cow, which is called *Sara*, whilst others maintain that it is the foam of the sea."

The cost of *ambergris* mentioned in this work is "one *Mohar* to three, per *Tola*."

(4) Tavernier (A. D. 1676) in his *Travels in India*⁶ records some valuable remarks on both *amber*⁷ and *ambergris*. About *ambergris*⁸ he notes the following points :

- (i) We do not know how it is formed or where it is found.
- (ii) It is found in the seas of the east and some times on the English and other European coasts.
- (iii) The largest quantity of it is found on the coast of Melinda, and especially at the mouth of the river Rio di Sena.
- (iv) The Governor of Mozambique brings with him to Goa every three years *ambergris* worth 300,000 *pardos* (= £30,000).
- (v) Tavernier devotes three pages to a story of a Frenchman (Marin Renaud of Orleans) on board a Portuguese vessel sailing from Goa to Manillas in A.D. 1627. This Frenchman discovered a piece of *ambergris* on the shore near the mouth of a river while bathing there. This piece weighed 33 *livres*. The sailors and soldiers quarrelled for it. The Captain of the ship presented it to the king of Portugal through the Viceroy and thus settled the dispute tactfully.

(5) Bernier in his *Travels*⁹ (A.D. 1656-68) mentions the imports of India. In this connection he states that India imports "*ambergris* from the *Maldives* and *Mozambic*."

(6) Ibn Battuta in his *Travels*¹⁰ (A.D. 1325-54) describes his voyage to Ma'bar (Coromandel) and his escape from a shipwreck. In this connection he states :—

5. English Translation by F. Gladwin, Calcutta, 1897, Vol. I, pp. 65, 68, 69.

6. Ed. by V. Ball, London, Vol. II, pp. 138-142.

7. *Ibid*; pp. 136-138 (remarks on amber)—The Dutch Company carried on trade in amber and the Chinese bought it from them at Batavia.

8. *Ibid*; Vol. I, p. 190 (*Ambergris* at Mozambique).

9. Ed. Constable, London, 1891, p. 204 (letter to Colbert).

10. Ed. A. R. Gibb, London, 1939, p. 261 (chap. X).

"The sailors tied ropes to the raft and swam with their aid. I sent along with them all things that I valued and the jewels and *ambergris* and they reached the shore in safety because the wind was in their favour."

(7) In a Portuguese poem¹¹ "*The Lusíades*" (Lisbon, 1572) translated into English by W.J. Mickle, London, 1776, we find a reference to *fragrant amber (ambergris)* as follows :—

"On Afric's strand...

From calls unknown, here bounteous ocean pours

The *Fragrant amber* on to sandy shores"

(8) Marco Polo in his *Travels*¹² (A.D. 1298) makes the following references to *ambergris* :—

Page 424-(chap. XXXIV)—Traders resorting to the "*Islands of Males and Females*" with the principal object "to purchase *ambergris* of which a quantity is collected there."

Page 425-6—Description of the island of Socotra in which the following points are noteworthy :—

(1) *Ambergris* is found on the coasts It is "*voided from the entrails of whales.*"

(2) It is an article of merchandise in great demand.

(3) The inhabitants make it a business to kill the whales with harpoons and drag them ashore and "*extract the ambergris*" from their bellies and from their heads they procure "*casks of (spermaceti) oil.*"

(4) Ships bound for Aden halt at Socotra (near Cape Guardafui) and purchase *ambergris* and cotton goods.

Page 428—Much *ambergris* from the whales is thrown by the tide on the coasts of *Madagascar* and it is collected for sale.

Page 433—Trading ships visit the island of Zanzibar and barter their goods for *ambergris* gathered on the coasts where it is found in quantities as the sea abounds in whales.

The references to *ambara*, *ambar*, *ambergris* recorded above are sufficient to establish the history of this aromatic ingredient in India and Africa from c. A. D. 700 onwards. This history is further corroborated by the following Arabic sources mentioning *anbar (ambergris)* :—

11. Quoted on p. 103 of *In Quest of Spices* by Sonia E. Howe, London, 1946.

12. *Travels of Marco Polo*, ed. by T.W. Wright, London, 1901.

1. The Arab geographer *Yaqubi* (c. A. D. 875) mentions various kinds of *anbar* including *anbar Hindi* which is procured from the coast and then exported to Basra and other places. The *anbar* which comes from *Hind* is called *karkbatus* associated with a community of that name.
2. The second Arab geographer *Abu Zayd* (A. D. 950) gives details of the origin of *anbar* and describes some varieties which do not comprise any variety associated with *Hind*. He further states that *anbar* is thrown up along the coast commencing from the sea of *Hind* but it is not known whence it comes.
3. The Arab geographer *Masūdi* (A. D. 950) gives the qualities of *anbar* and says that it grows in the bottom of the sea of *Harkand* etc. It is white, black, and of dark bay colour.¹³
4. The fourth Arab geographer *Idrisi* (A. D. 1165) states that *anbar* (ambergris) is found on the shores of Yemen flung there by the waves after stormy tempests. He further relates that *Harun-al-Rashid*, the Caliph, had sent some persons to inquire from the shore-dwellers what they knew about *ambergris* as there were many tales then current about its origin. The result of their inquiry was that *ambergris* flows from springs at the bottom of the sea.¹⁴

It would appear from these remarks of Arab geographers that some sort of *anbar* (ambergris) associated with *Hind* was known to them. Whether this *ambergris* was gathered on Indian shores or was imported into India by the Arabs is unknown. The only references to the use of *ambara* (ambergris) in Indian perfumery are found in a Sanskrit treatise viz. *Gandhavada*¹⁵ with Marathi commentary, represented by a single manuscript at the Bhandarkar Oriental Research Institute. This treatise was composed between A. D. 1300 and 1600.

In this attempt to reconstruct the history¹⁶ of *ambergris* in India

13. S. M. H. Nainar, *Arab Geographers' Knowledge of Southern India, up to 14th century A. D.*, Madras, 1942, pp. 187-190.

14. S. E. Howe, *In Quest of Spices*, London, 1946, p. 39.

15. *Vide folio 27b* of the manuscript of the *Gandhavada*—Recipe for a perfumed powder called *manmathodayaṇṇika*.

16. No history of *ambergris* in India or outside has been recorded by George Watt in his *Dictionary of Economic Products of India*, Vol. 1, Calcutta, 1889, p. 217, where his article on *ambergris* appears.

from A. D. 700 onwards, it has been difficult to determine at what time exactly it came to be used by Indians. Very probably the Arabs were responsible for its introduction into India in the 8th century A.D.¹⁷

17. In connection with the present inquiry I am curious to learn anything which the readers of *Chymia* may know concerning the history of *ambergis* in the ancient civilizations of Cyprus, Egypt, Mesopotamia, Greece, Rome, China, etc. In this connection I have made inquiries through my friend Dr. Gerhard Lindblom, Director of the Ethnographic Museum, Stockholm, but so far he has found no definite information which could be included in this paper.

3. Studies in the History of Indian Cosmetics and Perfumery :

Notes on the History of the Rose, Rose-water and
Attar of Roses — Between B.C. 500 and A.D. 1850*

The Marathi Dictionary *Śabdakośa* (by DATE and KARVE, Poona, Vol. I, 1932, p. 50) records the word *attar* (अत्तर) and its derivatives अत्तर-गुलाब, अत्तरदायी-नी and quotes a work called नवनाथ मन्त्रिसार (1896) 20, 101, as follows :—

“स्यात्त फुलें अ० । लोकामाजीं मिरवतसे”

No other usage of the word अत्तर is recorded in this Dictionary. have, however, to point out that Raghunātha Paṇḍita in his *Rajavyavaharakośa*¹ (A. D. 1676) भोम्यपणी explains the word अत्तर as पुष्पसार (essence of flowers) in the following lines :—

“अत्तरः पुष्पसारः स्याद्वस्तुसारोऽर्कमायकः ॥१२॥

मकरन्दो गुलाबः स्यात् केसरं जाफरा मयेव ॥”

The word गुलाब means “rose-water” and not rose-flower. The word अत्तर in the above lines most probably means the celebrated *attar of roses*, about which I have to note here the following information :—

The *Shorter Oxford English Dictionary* (p. 1392) contains the following entry about *attar* or *otto* :—

“OTTO—also formerly *otter*² *ottar* 1639. An altered form of *Attar*, in *attar* or *otto of roses*, the fragrant essence of roses.—Hence *joc.* in *otto of whisky*. THACKERAY.”

The *Hobson-Jobson* (YULE and BURNELL, London, 1903) p. 647, records the following note on *Otto*, *Otter* :—

*New Indian Antiquary, Vol. VIII, pp. 107-119.

1. Vide p. 8 of राजव्यवहारकोश, Shivaji Press, Poona, 1880.

2. Vide p. 12 of Intro. to *John Marshall in India* (Notes and Observations in Bengal —A.D. 1668-1672) ed. by S. A. KHAN, Oxford Uni. Press, London, 1927 p. 12—Richard Edwards a fellow-voyager to India with MARSHALL wrote on 13th July 1670 from Kasimbazar requesting MARSHALL to invest the produce of some sword blades sold at Patna for him in “Baroch (Broach) stuffs for breeches and the rest (if any remain) in one bottle of the best floweroyle and some otter (attar of roses) and chwa (chawwa).”

OTTO, OTTER. s. or usually 'Otto of Roses' or by imperfect purists *Attar of Roses*, an essential oil obtained in India from the petals of the flower, a manufacture of which the chief seat is Ghazipur on the Ganges. The word is the Arab *itr*, perfume. From this word are derived *attar*, a perfumer or druggist, *attari* adj. pertaining to a perfumer. And a relic of Saracen rule in the Palermo is the *via Litterini*, the street of the perfumer's shops. We find the same in an old Spanish account of Fez :—

A.D. 1573—"Issuing thence to the Cayzerie by a gate which faces the north there is a handsome street which is called of the *Atarin*, which is the spicery." —*Marmol. Africa*, ii. f 88.

[*Itra* of roses is said to have been discovered by the Empress Nūr-Jahān on her marriage with Jahāngīr. A canal in the palace garden was filled with rose-water in honour of the event, and the princess, observing a scum on the surface, caused it to be collected and found it to be of admirable fragrance, whence it was called *itr-i-Jahāngiri*.]

A.D. 1712—Kaempfer enumerating the departments of the Royal Household in Persia names "*Pharmacopoeia* .., ... *ATTHAARCHONEH*, in qua medicamenta et praesertim variae virtutisopiata, pro Majestate et aulicis praeparantur".

—*Am. Exot.* 124.

A.D. 1759—"To presents given etc.

.....

"1 Otter box set with diamonds

"Sicca Rs. 3000.....3222-3-6"

Acts of entertainment to Jugget Set in Long, 89.

A.D. 1790—"Elles onut...surtout pour celle de rose, applée OTTA"

—*Haafner*, ii, 122.

A.D. 1824—The *attar* is obtained after the rose-water is made, by setting it out during the night and till sunrise in the morning in large open vessels exposed to the air and then skimming off the essential oil which floats at the top."

—*Heber*, ed. 1844, i, 154.

In the book "पेशवाईच्या साक्षरि" by N. G. CHAPEKAR (Poona, 1937) we get the following references about गुलाबदाख्या and अतरदान :—

Page 207—A.D. 1783—"गुलाबदाख्या ९"

—"अतरदान पक्षी साक्षरपुत्रा १"

Page 215—A.D. 1794 (21st January)—Banquet to Nana Phadnis—
Rs. 5—"गुलाबी अतर"

Capt. Edward MOOR in the *Glossary* at the end of his *Narrative* etc. (London, 1794), page 501, records the following note on **अत्तर** :—

“*Attar*—An exquisite perfume from roses ; in England called *Otter*, *Otteau*, or *Otto* etc. *Attar* is also procured from sandal-wood but it is then distinguished from the superior essence, which is pre-eminently called *Attar*, only. So very difficult is it to procure the pure *Attar* in India even, that it is rarely seen, and perhaps not one part in five hundred of what is exported is pure and genuine. A particular account is given of the process of making *Attar* by Colonel Pollier in *Asiatic Researches*, Vol. I, p. 332.”

On p. 375 MOOR refers to “*rose-water*, *gul-aab*, which is sprinkled over guests,” and “*attar* of roses” presented to each person before “*beeree*” (**ताम्बूल**). On page 377 MOOR records how a soldier received the **अत्तर** :—

“On a public visit paid by Purseram Bhow to Colonel Frederick, at Darwar, the manner in which one of the guests received the *attar* had a curious appearance, and was for a soldier, a happy idea. He was a very well-looking man, and coming into the Darbar tent sometime after the Bhow etc. were seated we had an opportunity of seeing, by the manner in which he was received, that he was a man of importance. Our attention was attracted by his habiliments, as he had no clothing, save a pair of silk drawers, that reached from his waist half way down his thigh, and a turban on his head. A sword and target completed his equipment, and as his hands were filled with them, we were curious to see how he could receive the *attar*. He received it on his target, which he brought to his nose with great gravity. This person was, we think *Bunna Bapoo Mendla*,³ whom we have seen in a very important command on the confines of Bednore”.

The foregoing evidence shows how the *attar of roses* had become popular in England and India between A.D. 1600 and 1800.

In the *Ain-i-Akbari* (A.D. 1590) Vol. I (Eng. Trans. by Gladwin, Vol. I, Calcutta, 1897) p. 185 we read that Akbar weighed himself against the following articles—“Gold, quick-silver, raw silk, artificial perfumes, musk, Roohtootea etc.”

3. In the *Madhyayugina Caritrikora* (by Chitrav, Poona, 1937, p. 538) we find some account of **बप्पाजी राघुनाथ मेहेंदळे**, who was the younger brother of *Bahiro Raghunatha Mahendale*, the Peshwa's Wakil with the English Resident Sir Charles Malet (A.D. 1791). Bachyaji accompanied Lord Cornwallis in his campaign against Tipoo Sultan in A.D. 1791.

Evidently these perfumes must have been produced in plenty for royal use of the above type. In fact pages 65-75 of the *Ain-i-Akbari* (Gladwin's Trans. Vol. I) are devoted to the "*Regulations of the Perfume Office of Akbar.*" For the history of Indian cosmetics and perfumery the account of the royal perfumery given in the *Ain-i-Akbari* is of exceptional value. I note below some points from this elaborate record :—

Page 65—"His Majesty is exceedingly fond of perfumes, and the presence chamber is continually scented with *flowers* and fumigated with preparations of ambergris, lignum aloes etc. which are burnt in *gold and silver censers.*

His majesty constantly perfumes his body and the hair of his head with *odoriferous ointments*"

Pages 66-68—Odoriferous compositions described. I note some words from this description :—

- (1) *Sentowk* (a great exhilarator) —Civet, Chuwah, Jasmin oil, 2 bottles of rose-water.
- (2) *Argchjeh* (for summer use) —Sandal wood, Lignum aloes, Myd, Chuwah, roots of violets and Kehlet, Camphor, 11 bottles of *rose-water.*
- (3) *Gul Kameh* —Ambergris, Laudan, Musk, Lignum aloes, Akysir, juice of roses, juice of lemon blossoms, juice of sweet basil.
- (4) *Ruh-Afza* (for burning in censers) —Lignum aloes, sandal-wood, Laudan, Akysir, Frankincense, Derhoop (from Kashmir), violet roots Ushneh, 4 bottles of *Rose-water*—to be made into cakes.
- (5) *Owpteneh* (wash for hands) —Laudan, Lignum aloes, Lemon blossoms, Lemon peel, sandal-wood, Spikenard, Ushneh, Musk, Pacheh leaves, Apples, Sad, Violets, Derhoop, Akenky, Civet, Frankincense, 160 bottles of *Rose-water*, 5 bottles of the juice of lemon blossoms.
- (6) *Abyr Mayeh* —Lignum aloes, sandal-wood, violet roots, spikenard, Duwalek Musk of Tartary, Laudan, Orange blossoms, 10 bottles of *Rose-water.*

- (7) *Keshneh* —Lignum aloes, Laudan, Frankincense, Sandalwood, Akysir, Derhoop, Violet roots, Musk, Ushneh, Sugarcandy, 2 bottles of *Rose-water*—to be made into cakes—gives very fragrant smell, when burnt.
- (8) *Bekhur* —Lignum aloes, Sandalwood, Frankincense, Musk, Akysir, Sugarcandy, 1 bottle of *Rose-water*.
- (9) *Fetyleh* —Lignum aloes, Sandalwood, Akysir, Laudan, Violets, Frankincense, Sugarcandy, 2 bottles of *Rose-water*.—To be made into *Topers*.
- (10) *Barjat* —Lignum aloes, Laudan, Musk, Sandalwood, Frankincense, Camphor.
- (11) *Abyr Akysir* —Sandalwood, Akysir, Musk,—to be ground fit for use.
- (12) *Chesul* —Kettowl, Musk, Chuwah, Camphor, Myd, 2 bottles of *Rose-water*.

The aromatic ingredients recorded in the above notes on the different items of perfumery amply show their variety. *Rose-water* was used in plenty but there is no mention of the *attar* of roses in these notes.

Page 68—Abul Fazl then deals with "*Natural Perfumes*." The items in this category are :—

(1) *Ambergris*, (2) *Laudan* "from the tree found in the island of Cyprus and Chois," (3) *Camphor* "from a large tree found in the maritime mountains of Hindustan and China," collected from trunk and branches, (4) *Civet* from Achin "from an animal resembling a cat" (5) *Kowrah* "from an animal resembling the *Civet*" found in Achin, (6) *Myd*, something of the above kind but of inferior quality, (7) *Lignum Aloes*, root of a tree. Several kinds of it are :— *Mendely*, *Jebely*, *Semendury*, *Kemary*, *Kakey*, *Berry*, *Cathaiy*, *Chiny* (also called *Kemoory*), *Jelaly*, *Mytaky*, *Lemaky*,— of these *Mendely* is the best. *Semendury* is blue and burns for a long time on the fire, (8) *Chuwah* is distilled Lignum aloes.

Page 69—*Method*⁴ of making *Chuwah* :—"Small pieces of Lignum aloes ... put into a narrow-necked vessel ... luted with philosopher's clay... composed of clay, cotton and rice bran. A small space is left at the neck

4. Compare अथःवालेन बन्ध described in the बहःश्वाहयुवाह of

of the vessel which is placed inverted in another vessel, perforated at the bottom, and supported by a three-legged stand, under which is placed a dish full of water, so that the mouth of the first mentioned vessel may touch its surface. Then there is made round the inverted vessel a gentle fire of cowdung, which melts the aloes, till it distills into the water. This is collected and repeatedly washed with water and rose-water to take off all smell of smoke."

(9) *Sandal*, a native of China, "brought into Hindustan in this reign and thrives very well." (10) *Sandalwood*, three kinds (*white*, *red* and *yellow*—best is called *Mekasiry*, which is *yellow* and *oily*, (11) *Storax* a tree gum, native of Syria, liquid and dry kinds, (12) *Kelumbek*, a tree from Zeerbad, ground fine and mixed with other perfumes,—*rosaries* are also made of it, (13) *Mulageer*, resembling the above tree, (14) *Frankincense*, a tree gum from Java, (15) *Scented Nails* from Indus and Basra Bahrain, resemble shells collected from the nest of an animal.

Pages 69-70—*Table perfume.s with prices*—Ingredients in this list are :— *Ambergris* (1 to 3 Mohars per Tolāh), *Civet*, *Musk*, *Lignum aloes*, *Chuwah*, *Kowrah*, *Camphor*, *Myd*, *Persian Saffron*, *Kahghy Saffron*, *Cashmeery Saffron*, *Sandal*, *Musk pods*, *Kelumbek*, *Storax*, *Frankincense*, *China*, *Camphor*, *Essence of Fitneh*, *Essence of Baidmusk*, *Rose-water* ($\frac{1}{4}$ to 1 Rupee per bottle), *Essence of Orange flowers* (1 to 5 Rs. per bottle), *Essence of Jasmin* (4 to 8 Rs. per bottle), *Violet roots*, *scented nails*, *Bah leaves* from Guzerath, *Sugendeh Kookelah*, *Frankincense*, *Alekkhendy*, *Duwalek*, *Kanehleleh*, *Saad*, *Akuny*, *Zedoary*.

Pages 70-71 — *Notes on Flowers* :—These notes are very useful both historically and botanically and hence deserve to be reproduced here, but for want of space I have to mention only some points from them :—

- (1) *Sugendehkukla*—A very common shrub in Hindustan.
- (2) *Sewty*—Resembles *red rose* but is smaller.
- (3) *Jasmin*—Two kinds, one is called *Roy Chembely*.
- (4) *Royl Beyl* - Resembles *Jasmin*, several kinds.

बसोवर (ed. by Rajvaidya J. K. Shastri, Gondal, 1940, p. 7) Chapter 1 :—

"अचःपातनम् —

एवौर्जा स्थालिका सम्यक् विपरीता तु पंक्तिरे ।

गते तु स्थापिता मूली ज्वालयेन्मूर्ति पावकम् ॥

वाय-त्रितय-पर्यन्तम् अचःपातति पारम् ।

अचःपातनयन्त्रं हि कीर्तितं रसवेदिभिः ॥ "

- (5) *Mowngra*—Resembles Roy Beyl, but larger.
- (6) *Chempeh*—Conical in form, of a finger's length,—handsome tree flowering in seven years.
- (7) *Keytkey*—Resembles a cone of a pine tree—delicate fragrant smell—flowers in six or seven years.
- (8) *Chelteh*—Like a tulip but larger—has violet smell—withered flowers are boiled and eaten—tree of the size of the pomegranate tree—leaves like those of lemon tree, flowers in the 7th year.
- (9) *Kewrah*—Like *Keytkey*, twice as big—tree flowers in 4 years.
- (10) *Tusbeh Gulal*—fragrant smell, dagger-shaped petals,—2 ells high shrub, flowering in the 4th year—beads of these flowers keep fresh a week.
- (11) *Phulsery*—less than Jasmin, indented petals, resembles walnut tree, flowers in 10th year.
- (12) *Sengarhar*—clove-shaped, flowers in 5th year.
- (13) *Koozeh*—resembles white rose, Abyrmayeh made of this flower, used for distilling a kind of water.
- (14) *Padel*—gives agreeable flavour to water ; flowers in the first year.
- (15) *Jewhy*—flowers in the 3rd year.
- (16) *Newary*—resembles Roy Beyal, flowers in the 1st year.
- (17) *Kepurbeyl*—with 5 petals, resembles saffron flower—*lately brought from Europe*.
- (18) *Saffron*—Resembles *Kepurbeyl* ; six petals and six threads. The first three petals are very beautiful, encompassed by three similar petals, between these six petals are three yellow threads, which are saffron.
- (19) *Sun-flower*—round, broad, large ; numerous petals, always turns towards the sun ; height of shrub, three ells.
- (20) *Kenwel*—2 kinds,—one yellow blowing in the morning and following the sun in its course, shutting up in the evening, with 6 petals, resembles *Anemone*.—other kind, white, 4 petals, blows in the moonshine and turns towards it in the same manner as the Sun-flower follows the Sun.
- (21) *Jafery*—round beautiful, larger than *Sudberg*.
- (22) *Gorhel*—like tulip, numerous petals, flowers in 2nd year.
- (23) *Retenmungeny*—4 petals smaller than *Jasmin*, tree and leaves resemble Roy Bel, flowers in 2nd year.
- (24) *Keysew*—five petals, resembling the nails of a lion.
- (25) *Kenafyr*—long time in bloom. beautiful but unlucky, one, wearing it on his head, gets into quarrels, flowers in one year.

- (26) *Kuddem*—Round like a ball, tree and leaves resemble walnut tree.
- (27) *Nageshir*—Shaped like the red rose, white with yellow in the middle, fine petals and threads, flowers in 7 years.
- (28) *Soorpun*—Resembles sesame flower, yellow in the middle.
- (29) *Sirrykhundy*—Somewhat like Jasmin, flowers in 2 years.
- (30) *Henna*—4 petals, every shrub bears a different coloured flower.
- (31) *Dupahrya*—Small flower, dark red colour, blows always at noon.
- (32) *Bhuyan Chumpa*—Resembles Neelofer, five petals, grows in inundated ground, nothing but flower appears above the surface.
- (33) *Soodorson*—Resembles Roy Bel, yellow threads within petals,—the plant is like the lily.
- (34) *Spikenard*—five petals, each 10 fingers long, and 3 fingers broad.
- (35) *Rotonmala*—Used for dying cloth; a decoction of it mixed with vitriol and Masfer flowers produces red colour.
- (36) *Malty*—Like Jasmin, but smaller, flowers in 2nd year.
- (37) *Soon*—Like yellow Jasmin, somewhat larger, five petals, tree resembles Jasmin, flowers in 2nd year.
- (38) *Kerayl*—beautiful, 3 little petals, made into broth and also pickled.
- (39) *Jait*—Grows on a large tree, leaf resembles the tamarind leaf.
- (40) *Chempalah*—like a Nosegay—flowers in 2nd year, its bark makes red decoction, grows chiefly in mountainous countries, wood burns like candle.
- (41) *Laky*—shrub, 1½ ell high, branches, before the flowers appear, are eaten with bread.
- (42) *Kerunde*—Resembles Jewhy flower.
- (43) *Dhonwontor*—beautiful, resembles Neeloser.
- (44) *Seris*—like threads of silk—sends fragrance to great distance—called the *King of trees*, very large tree, used in building, its heart is black and resists the axe.
- (45) *Kunglay*—beautiful, in 5 petals, each 4 fingers long—only one flower on each stock.
- (46) *Hemp*—in clusters like Nosegay, leaves like those of Chinar tree—Rope is made of its bark—one species has a flower like cotton shrub and it is called *Sun-paut*; this makes a very soft rope.

Abul Fazl concludes his description of flowers and flowering plants as follows :—

"It would be impossible for one, ignorant as I am, to describe every flower of this country. A few have been mentioned by way of specimen. Here are also found abundance of flowers transplanted^a from Persia and Tartary ; such as roses, violets, Jasmin etc. The plants, flowers, roots etc. of this country, that are used for food, or applied to medicinal purposes are innumerable. It is said by Indian authors that if you take a leaf of every tree they will amount to six maunds."

In concluding his section of the *Regulations of the Perfume Office* Abul Fazl gives the following Table of flowers :—

Name	Colour	Season
(1) Sewty	... White	... All the year.
(2) Jasmin	... White and yellow	... The Rains and Winter
(3) Roy-beyl	... white	Summer
(4) Mowngra	... Do	Do
(5) Chempeh	... Pale yellow	... All the year
(6) Keytky	... Do	... Summer
(7) Chelteh	... White	... Winter
(8) Koozeh	... White and Yellow	... Autumn
(9) Gulal	... White	... Spring
(10) Tesbeh Gulal	... Do	... Winter
(11) Phulsery	... Do	... The Rains
(12) Sengahar	... Do	... Summer
(13) Padil	... Do	... Spring
(14) Jewhy	... Yellow and White	... The Rain
(15) Newary	... White	... Spring
(16) Narcisus	... Do	... Do
(17) Violet	... Gives name to a colour	... Summer
(18) Kerneh	... White	... Spring
(19) Kepurbeyl	... ..	... ..
(20) Saffron	... Violet colour	... Autumn

5. Compare Edict II of Emperor Asoka :—

"Wherever plants useful either for men or animals were wanting they have been imported and planted. Wherever roots and fruits were wanting they have been imported and planted." (Videp. 47 of *Surgical Instruments of the Hindus* by G. Mukhopadhyaya, Vol. I, Calcutta 1913).

	Name	Colour	Season
		... Yellow	... ..
(21)	Sun-flower	... A light red half	... The Rains
(22)	Kenwel	... blue and white	... ..
		... Dead Yellow	... Spring
(23)	Jatry	... Red, Yellow, Orange	... The Rain
(24)	Gorhel	... and White	... ..
		... Fiery Red	... All the year
(25)	Retemungeny	... ..	... Summer
(26)	Kaysew	... Red and White	... ..
(27)	Kenyar	... Yellow and White	... Spring
(28)	Kuddem	... Within White and	... Do
(29)	Negehsir	... Yellow	... ..
		... Do	... The Rains
(30)	Sorpun	... White, Red and	... Spring
(31)	Serry khendy	... Yellow	... ..
		... ..	... All the year
(32)	Henna	... Bright, Red and	... ..
(33)	Dupahrya	... White	... ..
		... Apricot colour	... The Rains
(34)	Bhuyan Chumpa	... Yellow resembling	... ..
(35)	Sudersun	... Water Lily	... ..
		... Dirty Red	... Spring
(36)	Spikenard	... Yellow	... Do
(37)	Rutenmala	... Do	... Do
(38)	Soon	... ..	... ..
(39)	Malty	... ..	... ..
(40)	Clove Jelly flower	... Golden Colour	... Spring
(41)	Keroyl	... ..	... Do
(42)	Jait	... Yellow with Red	... The Rains
		... and Black	... ..
(43)	Chumpelah	... White	... Spring
(44)	Lahy	... Yellow	... Winter
(45)	Kerundeh	... White	... The Rains
(46)	Dhonontor	... Like the Water Lily	... Do
(47)	Siress	... Yellow inclined to	... Spring
		... Green	... ..
(48)	Kunglay	... Red and Yellow	... ..
(49)	Hemp	... Yellow	... The Rains

My object in recording the above account of cosmetics, perfumes and flowering trees and plants from the *Ain-i-Akbari* (A.D. 1590) is two-fold.

In the first instance this account is a fairly exhaustive record of the names of aromatic ingredients current at the Mogol Court in the 16th century. Secondly, this record is very useful for comparison of these ingredients with those recorded in the two special treatises on *Gandha-sastra* discovered by me for the first time viz. the *Gandhasāra*⁶ of Gaṅgādhara (between A. D. 1000 and 1600) and the *Gandhavada*⁷ with Marathi commentary (between A.D. 1350 and 1550). These three records which amply vouch for the wide-spread manufacture and use of cosmetics and perfumes in India say between A.D. 1200 and 1600 provide a good basis for a further study of this forgotten subject, which has its due place in any history of Indian culture, not to say the culture of humanity, for cosmetics are as old as man.

After the foregoing notes were drafted my friend Dr. Sadgopal, Chief Chemist of the Hindustan Aromatics Company at Naini (Allahabad) sent me some books on *Rose* and desired me to incorporate in this paper a few notes from these books bearing on the history of the *Rose*. I record below such notes for the benefit of the students of the history of Indian plants:—

(1) George M. Taylor in his book on "*Roses, Their Culture and Management*" (London, 1945) deals with the "Evolution of our Modern Roses" (Chap. 1). The following points may be noted from this chapter:—

(i) *The Cabbage or Provence Rose* (*Rose Centifolia L.*)—This was long reputed to be the Rose of Pliny and Theophrastus. Scientists have now proved that "this rose was evolved very slowly over the years from the end of the sixteenth century to the beginning of the eighteenth, and it then reached the form in which we know and appreciate it today."

(ii) The history of our Garden Roses falls into two periods:—

(a) 2000 B.C. to A.D. 1800—The most important of our ancient Garden Roses originated from the wild species of the genus *Rosa*. These are the *Red Rose*, the *Phoenician Rose*, the *Musk Rose* and the common *Dog Rose*.

(b) A.D. 1800 to 1944—At the beginning of the 19th century there was a revolution in the Garden Roses in England, where the *China Rose* was introduced towards the end of the 18th century.

(iii) *Ancient Garden Roses*—Ancient Roses flowered only once a year. Modern Roses are *potentially perpetual* if the climate is

6. Vide p.p. 44-52 of *Journal of Bombay University*, Vol. XIV, Part II, Sept. 1945,

7. Vide pp. 185-193 of *New Indian Antiquary*, Vol. VII (Feb-Mar. 1945).

favourable. This characteristic is due to the *breeding with the China Rose*. The foundation species of most of our Garden Roses is the *Red Rose of Lancaster*. This Rose in its wild state extends from France to Persia. Its history is lost in ages. One French rosarian claims that it was the *Rose of the Persian Magi of the 12th century*.

- (iv) *Descendants of Wild Roses* from 4 wild species mentioned above (a).
- (v) *The China Roses* — Their character of perpetual flowering—
"Science has proved that a pair of these genes, one from the male and one from the female parent, is present in every growing cell of our best modern Roses."

(2) The *National Rose Society* of England was founded on 7th December 1876. In the *Rose Annual for 1945*, edited by Courtney Page, (pp. 31-33) there is an article on the "History of the Provence Rose" by G. E. J. The following points may be noted from this article :—

- (i) In the long history of Roses, the *Provence* or "Hundred-leaved" Rose is the *backbone of continuity*.
- (ii) *Rosa gallica* or French Rose is the name of the Rose grown for attar in Bulgaria, and Asia Minor (in Morocco and some parts of Asia, the *Musk Rose* is said to be chiefly used) and now long become an indigenous plant over almost the whole surface of Europe.
- (iii) *Herodotus* (viii, 138) describes Roses in the Gardens of Midas :
"Here Roses grew so sweet that no others can vie with them."
- (iv) *Paestum*, a Greek town in the Greek part of Italy, became the Rose centre of the world in Roman times. From Paestum Rose cultivation spread to Southern Italy.
- (v) *Pliny, Hist. Nat.* XXI, 19, mentions "*companions*" Rose as "early in blooming."
- (vi) When the Roman Empire broke into pieces the sturdiest of Roses had settled itself in *Gallia Provincia*, after which it was called as "*Provence Rose*."
- (vii) Lyon (*Lugdunum*) was the next principal centre of the growth and export of Roses through the dark rose-less ages.
- (viii) The seat of the Empire next shifted towards Paris and then towards Hertfordshire and Essex.

- (ix) The history of the Roses brought from France to England in the Middle Ages is irreparably lost. According to the *National Rose Society's Catalogue* the Provence Rose was introduced into England in A.D. 1596, while Haydn's *Dictionary of Dates* says that it came from Flanders in 1567.

(3) B. S. Bhattacharji in Chapter XI of his book "*Practical Rose Growing in India*" (Thacker, Calcutta, 1935) deals with the classification of Roses (pp. 81 ff). Incidentally he makes the following observations :—

- (i) The Rose is no foreign to India as apart from the fact that more than one species grow wild in the Himalayas.
- (ii) The *Otto of the Rose* was first invented by Empress Nurjehan in India as far back as the 17 century.
- (iii) From the earlier part of the 18th century roses are being grown in huge quantity in India for the production of attar, rose-water and rose-petal conserve.
- (iv) Dr. Jules Hoffmann in his German work on roses states in his Introduction that the rose is "supposed to have been introduced from India and Persia to the gardens of the ancient Greek and Roman empires" whence it spread to the whole civilized world.
- (v) The *China Rose* is known as *Rosa Indica Semperflorence* and *Rosa Bengalensis*. They are known as *Bengal Roses* probably because "they are or were natives of Bengal." Bengal roses are perpetual bloomers.
- (vi) Summer blooming and perpetual blooming roses are found wild in many parts of the Himalayas and natives collect their rose-petals on a commercial scale.
- (vii) Prior to the introduction of *Rosa Indica* and *Rosa Indica Odorata* Europe had no perpetual blooming rose.
- (viii) According to the catalogue of *Petten Bros.* of Luxembourg (established 1867), *Rosa Indica* was introduced from Canton (China) into England by the English traveller KEER. Of the *Rosa Indica Odorata* this catalogue says : "This rose has come to us from China. The first variety was introduced from India into England in 1789 and in France in the year 1810 by the name of *Rosa Odorata*. The yellow *Tea Rose* was brought over about 1824 and by successive crossings the two roses produced the whole brilliant series which we possess nowadays."
- (ix) Owing to the untiring efforts of European growers for hybridization we have enormous varieties and classes of roses.

(4) In Parry's *Cydopaedia of Perfumery* (London, 1925, in 2 vols.) there is an article on the *Perfume of the Rose* (pp. 630-664). The first few pages of this article contain much useful information as will be seen from the following notes :—

- (i) No perfume has been so persistently popular as that of the Rose.
- (ii) There is no "artificial" *otto* of merit which does not contain some amount of natural *otto*.
- (iii) The Rose perfume industry is mainly in the hands of the Bulgarians, but its scientific knowledge has been mainly developed by Frenchmen.
- (iv) Important treatises on the Rose :—
 - (a) *J. P. Buchoz*—"Monographie de la Rose," Paris, 1804.
 - (b) *M. Boitard*—"Manuel complet de l'amateur de Roses," Paris, 1836.
 - (c) *R. Blondel*—"Les produits odorants des Rosiers, Paris, 1889.
- (v) *Herodotus* is the earliest writer to differentiate between the odours of various Roses (*Histories*, Bk. iii. ch. 138).
- (vi) The Romans regarded *rose leaves* as an antidote to headaches etc. resulting from an excess of wine. This probably accounts for the practice of causing *rose-leaves* to rain down on the guests at the end of a feast and also of the practice of *steeping rose-leaves in wine*.
- (vii) The use of *rose-leaf* as a source of *perfume* is very ancient. The use of *perfumed leather* was introduced very early into Rome from either Greece or Babylon.
- (viii) The Romans enjoyed the perfume of the Rose in the form of *Rose-water*.
- (ix) Originally *Egyptian Roses* were brought to Rome and the principal rose so imported appears to have been *Rosa damascenna*.
- (x) Later Roses were cultivated in Rome. *Virgil* (B.C. 70—A.D. 19) the Roman poet ("*Georgics*", IV) mentions the famous *Rose Gardens* at *Poestum*.
- (xi) *Pliny* is the first writer to give some *botanical description* of the Rose ("*Natural History*, bk. xxi. ch. iv). He divides Roses into *wild* and *cultivated* flowers and classifies them according to *colour*, *odour* and *habitat*. He knew some of the roses which we know today viz. (1) *Rosa gallica*, (2) *R. centifolia*, (3) *R. damascena*, (4) *R. provincialis*, and (5) *R. moschata*.

- (xii) Charlemagne in his "Capitularies" recommends the cultivation of the Rose. In his time the flower and its perfume had become important in upper-class house-holds.
- (xiii) The first mention of distilled rose-water in a European work is that by Joannes Actuarius (*Demethode medendi*, Bk. v. ch. iv) who lived towards the end of the 13th century.
- (xiv) The oil of Roses was discovered towards the end of the 16th and at the commencement of the 17th century. The pharmacopœias of the 16th, 17th and 18th centuries contain many medicaments, flavoured with rose-water, powdered roses, and essence of rose.
- (xv) The history of the Rose in perfumery on a modern basis dates from some time after the discovery of the method for isolating the essential oil.
- (xvi) The art of distilling the rose had its origin in Persia. According to Ibn Khaldun about 810-817 in the reign of the Caliph Mamoun, the province of Farsistan was compelled to provide annually a tribute of 30000 bottles of rose-water to the treasury at Bagdad. Istakhri ("Livre des Campagnes," p 73) refers to the considerable production of rose-water throughout the province of Farsistan, which was exported to China, India, Egypt, Spain, and Morocco. The principal seats of manufacture were at Dschur (the Firuzabad of today) between Shiraz and the coast, where the rose-industry is still in existence.
- (xvii) The Arabs were responsible for the introduction of distillation into Europe. The Calendar of Harib for the year 961 refers to April being the most suitable month (in Spain) for the preparation of rose-water. Kaempfer ("Amoenitates" 1712) speaks with admiration of the roses of Shiraz and of the considerable trade in their products. He says :—"Distilled rose-water is freely carried all over India and the provinces of Persia itself. It is esteemed as an article of luxury at feasts and reunions of friends. It is boiled with cinnamon and white sugar and is drunk as an alternative to Kahwa. Rose-water is used to sprinkle the guests with as a sign of welcome. It is more expensive than wine. The roses themselves are also expensive."
- (xviii) The Rose has no special name in Persia. It is called gul—"the flower" par excellence. Kaempfer describes a garden of roses at Persepolis. He also gives the first positive indication that

we have of the definite existence of an industry for the distillation of essence of rose, which was also made at Shiraz.

- (xix) About A.D. 1574 GERONIMO ROSSI ("De distillatione liber" Ravenna. 1582) had noted that one could separate an extremely odorous oil matter from the surface of rose-water. ANGELUS SALA ("Opera Medico Chymica," Frankfort) refers between A.D. 1610 and 1630 to the volatile oil of roses as a substance "of brilliant whiteness, resembling spirmaceti." PORNET, towards the end of the same century refers to the sale of a small quantity in Paris. "Besides", he states, "the water which one obtains from roses, one can extract an odorous inflammable spirit, most useful for fortifying and rejoicing the heart and stomach."

- (xx) By the end of the 16th century oil of Rose was known to the chemists and apothecaries of Europe. Although the East is the original home of the rose and its perfume it was only about the same time that the separation of the essential oil was discovered there,

Langles ("Recherches sur la découverte de l'essence de Roses," 1804) fixes the date of the discovery in the East as 1612. He searched Persian and Mongolian literature but found no mention of *Athr gul* (fat of the flower — essence of rose) anterior to that date. Persian poets like Hafiz and Sadi mention the rose-water and the rose, but never the *athr* (essence). No European traveller to Persia before A.D. 1612 ever mentions essence of rose. The essence is first described in a work entitled "*Tarykh montakheb lubab*," a history of the Grand Moguls from A.D. 1525—1667 written in Persian by Mohammad Achem. He mentions the essence twice in the chapter on the marriage of Nur Jehan with Jehangir and in another chapter on the 7th year of Jehangir's reign (Hijra 1021).

Manucci (in his "Histoire etc", 2nd Edn. vol. i, p. 326) describes the circumstances about the discovery of the essence of the Rose.

Whatever be the truth of the foregoing evidence there is no doubt that the manufacture of essence of rose in Persia dates from A.D. 1612. In 1664 Kaemper visited Persia and found the Shiraz distilleries in a prosperous condition. A century later Col. Polier wrote about the essence of roses (*Asiatic Researches*, Vol. i, xvi). About this period Forster ("*Voyages de l'Inde etc.*" Vol. I, 294) mentions Kashmir roses as the most beautiful in the world and refers to the

popularity of the *essence of the rose*. Olivier ("Voyage etc.". 1907, Vol. V, 357) found the industry in full swing in Shiraz, Farsistan and Karman.

- (xxi) The distillation of the *essence of rose* appears to have been introduced from Persia via Bassorah and from Arabia into India first to the town of Kanauj on the Ganges and then to Ghazipur, where the industry is still in existence.
- (xxii) The Turks took the industry of the distillation of *Roses* to Europe. *Essence of Roses* was distilled in the island of Chios at an early date, and, according to a tradition still current in Bulgaria, it was from Tunis that the industry was brought to Kazanlik by a Turk in about 1680. About the same time the distillation of *Roses* was introduced into France from the African coast.

Parry's *Encyclopaedia* next deals with the Rose Perfume Industry as it exists at present. According to the account recorded in this *Encyclopaedia Bulgaria* supplies the greatest part of the world's consumption of the *otto of rose*. The Rose cultivated in Bulgaria for this purpose is *Rose Damascena*.

About the *Rose industry in India* we are informed here as follows:—

- (1) For upwards of two centuries Rose distilleries have existed at Ghazipur, Lahore and Amritsar. (See Gadre and Muckerji in *Journal of Indian Industries and Labour*, 1922, i, 86).
- (2) In 1920 the U. P. Government instituted investigation into the Rose industry and thereafter conducted certain experiments.

The account of the Rose industry in other countries (like France, Germany, Anatolia, Russia, etc.) has no historical importance and hence need not be taken note of in the present study.

I hope the foregoing data, bearing on the history of the Rose and Rose products viz. the *Rose-water* and *Attar* or *Otto of Roses*, collected by me from several sources will clarify our knowledge of this problem. It is still a mystery why there are no references to the Rose or Rose water in Sanskrit literature in spite of the contact of India with Rose-growing countries like Persia, Babylon, Egypt, Greece, Rome etc. for more than 2,000 years. I propose to deal in a special paper with the history of the Rose in India on the strength of documentary evidence but for this purpose it was found essential to record some historical data about the Rose and its products in their world-perspective. The chronology of

these data as recorded in the present paper will be clear from the following table :—

Chronology.	Reference.
	R = Rose flower and plant ; RW = Rose-water ; RA = Rose Attar.
B.C. 2000 to A.D. 1800	—First period of the history of ancient Garden Roses which <i>flowered once a year</i> .
A.D. 1800 to 1944	—Introduction of <i>perpetually flowering China Roses</i> into England and their breeding with ancient Garden Roses.
B.C. 484	—Birth of the Greek historian <i>Herodotus</i> , who describes <i>roses</i> in the Gardens of Midas.
B.C. 287	—Death of <i>Theophrastus</i> the father of Botanical Science, who refers to R in his work <i>On Plants</i> . Theophrastus was born about 371 B.C.
B.C. 70 — A.D. 19	— <i>Virgil</i> refers to the famous R gardens at <i>Poestum</i> in his <i>Georgics</i> .
A.D. 23—79	— <i>Pliny</i> gives botanical description of R in his <i>Natural History</i> —Use of <i>rose-water</i> , <i>rose-leaf</i> and <i>perfumed leather</i> by the Romans.
A.D. 768	— <i>Charlemagne</i> in his "Capitularies" recommends the cultivation of R.
A.D. 810—817	—Reign of Caliph Mamoun— <i>Farsistan</i> in Persia compelled to pay a tribute of 30,000 bottles of RW to the Bagdad treasury—RW from Farsistan exported to <i>China</i> , <i>India</i> , <i>Egypt</i> , <i>Spain</i> and <i>Morocco</i> .
A.D. 961	—Calendar of Harib refers to <i>April</i> as suitable month for preparation of RW (in Spain)—The Arabs introduced R distillation into Europe.
A.D. 1275—1300	—First mention of distilled RW in a European work of <i>Joannes Actuarius</i> .
A.D. 1485, 1511	—Picture of R plant with flowers in an Herbal " <i>Ortus Sanitatis</i> ", Venetijs, 1511 (Latin reprint of original German Edition, Mainz, 1485)—See plate facing p. 62 of <i>Plant Sciences</i> , by Howard S. Reed, Waltham (Mass.) U.S.A. 1942.
A.D. 1573	—Usage of the word 'Atrain' as the name of a street (see <i>Hobson-Jobson</i>).

- c. A.D. 1574 —Geranimo Rossi ("De distillatione liber" Ravenna, 1582) had noted that one could separate an extremely odorous oil matter from the surface of rose-water.
- A.D. 1590 —Roses from Persia planted in India. Free use of Rose-water in the preparation of cosmetics mentioned in the *Ain-i-Akbari*.
- A.D. 1610—1630 —Angelus Sala refers to the "volatile oil of roses as a substance of brilliant whiteness."
- A.D. 1612 —Discovery of Attar of R by Nur Jehan.
- A.D. 1639 —Usage of the words "Oter," "Ottar" in the *Shorter Oxford Dictionary*.
- A.D. 1656—1717 —Manucci describes the discovery of the RA.
- c. A.D. 1667 —RA first described in a Persian work "*Tarykh montekheb etc.*" on the history of Grand Moguls from A.D. 1525—1667.
- A.D. 1670 —Richard Edwards mention "Otter."
- c. A.D. 1676 —RA mentioned as "अक्षरः पुष्पगतः" in the *Rajav-yavahārakośa* of Raghunātha.
- c. A.D. 1680 —Rose industry taken to Bulgaria by a Turk.
- A.D. 1684 —Kaempfer's visit to Persia—He found Rose distillaries in a flourishing condition.
- A.D. 1712 —Kaempfer refers to "Atthaarchoneh" of the Royal House-hold of Persia (*Hobson-Jobson*).
- K. also refers to rose-water carried from Persia to all over India.
- A.D. 1759 —"Otter box" (*Hobson-Jobson*).
- A.D. 1794 —Edward Moor's note on RA in his *Narrative*.
- गुलाबी अक्षर worth Rs. 5 used at a banquet given to Nana Fadnis.
- A.D. 1804 —Langles's work on "Researches on the Discovery of the Essence of the Rose" (in French).
- A.D. 1807 —Olivier found R industry in full swing in Shiraz, Farsistan and Karman in Persia.
- A.D. 1824 —Heber's reference regarding the preparation of RA.
- A.D. 1836 —M. Boitard's work on Roses (in French), Paris.

P.S.—After this paper was prepared I came across the following remarks on the Rose by Howard S. Reed in his *History of Plant Sciences* (U. S. A., 1942) p. 123 :—

Chapter VIII (Gardens)—

"European gardens have depended upon Oriental species of roses for breeding stock for many generations. LA QUINTINYE (*"Instruction pour les jardins,"* (1697) edition) wrote of the *Rose of China*, but said it had several other names. He mentioned the size of the shrub, saying that it eventually attained the height of a tree. The parents of the modern cultivated rose of our gardens were three Chinese species. One of these, the *China Monthly rose* (*Rose Chinensis*) had been brought to India early in the seventeenth century by a Captain of the British East India Company. It was introduced into Holland in 1781 under the name *Bengal Rose*; hence it was thought to be a native of India. Sir Joseph Banks brought it to England in 1789. In 1804 the first rambler rose (*R. multiflora*, var. *Carnea*) reached England, followed in 1808 by the first tea-scented rose (*R. odorata*) both coming from China. These three species, then, have furnished the entire stock from which our modern roses have developed, hybridization and horti-cultural techniques having produced the wealth of garden forms now known."

In view of the important role played by the China rose in the development of modern roses it is worth while knowing the history of the Rose in China as reflected in Chinese sources botanical or otherwise. In this connection I made an inquiry in 1944 of Prof. Hsü Jen of China then working with Dr. Birbal Sahni at the Lucknow University. Prof. Hsü was kind enough to write in this matter to his friend Mr. T.T. Yü, a research fellow in the Yunnan Botanical Institute. Mr. Yü responded promptly and sent me through Prof. Hsü his Notes on 57 varieties of Chinese Roses, cultivated in North China, East China, West China, N. W. China, S. W. China, South China, Central China, Central Asia, Korea, Japan, Burma, N. E. China etc. The names in this list are too technical to be reproduced here. I may, however, mention some varieties by their popular names such as—

- (1) *Bank's rose*, for covering banks and rocky slopes.
- (2) *Macartney Rose* (E. China).
- (3) *Himalayan Musk Rose* (W. C.).
- (4) *China "Monthly Rose"* of many forms and varieties.
- (5) *Cabbage Rose* (Caucasus) introduced.
- (6) *Cherokee Rose* (E. and S.) — fruit and seed used in medicine.
- (7) *Seven Sisters Rose*.
- (8) *Tea Rose* (*R. Odorata*)—S. W.

While forwarding to me Mr. Yü's list of 57 Roses Prof. Hsü sent me some valuable information about Chinese Roses and literature pertaining to them as follows :—

Lucknow, 9th Sept. 1944—"Two famous Chinese books dealing with plants are *Chih-wuming-Shih-tu-K'ao*, a manual of flowering plants with illustrations of figures and *Chyun-fan-pu*, a manual of ornamental plants. The former is a great book, written by *Wu-Chi-Chun* in the early period of the Ching Dynasty, 300 years ago. The author described adequately 1714 species of plants with illustrations of accurate figures to certain amount, from different parts of China including Yunnan province. It is a great work and one can trace the plants by his figures even at present. One best Chinese taxonomist had traced these plants and wished to give some supplements, with Latin names etc. for publication but very unfortunately the work has not yet been finished as he died by illness two years ago. The second is only a manual of ornamental plants, written by *Wang Shiang Ching* in Sung Dynasty, about 10th to 11th century. Besides these, a great Chinese *Materia Medica Pên-tsao-Kangmu*, was written by the great herbalist, *Li Shee-tsin* of Ming Dynasty in 1595 but it is not merely a manual of plants, because it deals with some minerals and animals. As to the most ancient Chinese *Materia Medica*, probably it is the book "*Shen-nung-pên-tsao-Ching*," the *materia medica* of *Shen-nung*, which was believed to have been started as early as in the Han Dynasty since 31 B.C. and perfected by *Tao Hung-Ching* (A.D. 456-541).

In Mr. Yü's *Notes on Roses*, *Rosa banksiae* has been described in two books, *Hua-Ching*, the key of flowering plants, and *Chun-fan-pu*. The former is also a manual of ornamental plants, but I am sorry, I do not know the date and author of this book. *Rosa laevigata* has been described in *Jia-yow-pên-tsao*, a *materia medica* written by *Jang Yü-Shee* and others in A.D. 1057. *Rosa microcarpa* has been described in *Pên-tsao-shih-yee*, *Materia Medica Supplementum* by *Chao Shyne-meng* in 1765 A.D. *Rosa Chinensis* has been described in *Pên-tsao-kang mu*; *Rosa multiflora* in *Shen-mung-pên-tsao-Ching*; three varieties of *Rosa multiflora* in *Chun-fan-pu*, *Rosa Roxburghii* in *Chih-wu-ming-shih-tu-Kao*; *Rosa rubus* in *Rua-Ching* and *Rosa rugosa* in *Chun-fan-pu*." I hope the above remarks of Prof. Hsü will widen our knowledge of the Chinese roses and their historical back-ground.

In concluding these few notes of mine on the history of the Rose and Rose-products in their world-perspective I have to record my hearty thanks to Dr. Sadgopal, who stimulated my interest in the history of *Gandhaśāstra*, to Professor Hsü and Mr. Yü for the painstaking scholarly manner in which they supplied some information about the Chinese Roses and their history and finally to Dr. Birbal Sahni not only for putting me in touch with these Chinese scholars but also for stimulating my study of the age-long history of Indian plants, a vast unexplored field, as it appears to me when I study problem after problem connected with this field.

5. Buchanan's Account of the Manufacture of
Rose-water and other Perfumes at Patna
in A.D. 1811 and its bearing on the
History of Indian Perfumery
Industry*

In my paper on "Some Sanskrit verses regarding the Manufacture of Rose-water" (found in a MS of A.D. 1851) I have recorded the following facts bearing on the history of rose and rose-water in India :—

- (1) As the Sanskrit verses regarding the manufacture of rose-water by the process of distillation are found interpolated in a MS of A.D. 1851 by some Sanskrit Pandit we can easily suppose that the manufacture of rose-water from roses cultivated on Indian soil had commenced long before A.D. 1851. We must, however, investigate the exact chronology of this indigenous rose-water by recording earlier references to the manufacture of indigenous rose-water found in Sanskrit or non-Sanskrit sources.
- (2) The *Rajavyavaharakōśa* (c. A.D. 1676) refers to *gulāb* or rose-water but does not record the process of its manufacture.
- (3) The work *Kṣemakutīhala* of *Kṣemasārman* (c. A.D. 1550) refers to a flower *goulala* which may perhaps mean a *rose-flower*.
- (4) Bhagavantrao Yādava refers to *gulāb* or *rose* in his Marathi poem in praise of Nana Saheb Peshwa (A.D. 1721-1761).
- (5) Raja Shahu of Satara ordered in A.D. 1723 twenty bottles of *rose-water* from the British though Kanhoji Angria. This reference suggests that indigenous rose-water was not available to Shahu or that the imported rose-water was of superior quality.
- (6) In MSS dated 1787 A.D. and 1874 A.D. of a work called *Hakim Pharāsis* which is a mixture of Sanskrit, Marathi and Hindi, we find references to *gulāb* flower, *gulāb attar* and *guland*, all of which show the growing popularity of the *rose* in India.
- (7) The Hindi poet Bihari (A.D. 1603—1663) refers to *gulāb* in the sense of *rose-flower* and *rose-water* in his *Satasai*.
- (8) The *rose-water festival* current at the court of the Mogul Emperor Shah Jahan (A.D. 1628—1658) suggests the use of imported *rose-water* rather than the indigenous one.

The foregoing data, though useful for an accurate history of *rose-flowers* in India, does not enlighten us as to the history of the indigenous manufacture of rose water. I shall, therefore, record in this paper some more data regarding this manufacture as recorded by Francis Buchanan in his *Patna-Gaya Report* (A.D. 1811-12) published by the Behar and Orissa Research Society. These data support the Sanskrit verses¹ regarding the manufacture of rose-water found interpolated in a MS of A.D. 1851.

Speaking of persons by whom commerce is conducted, Buchanan states in his *Patna-Gaya Report*² as follows :—

Vol. II, p. 689—“(The *Gandhi* deal in *rose-water*, perfumed oils and essences, toothpowder and finer kinds of implements used for smoking. They have capitals from 100 to 1,000 Rs. The perfumes are also retailed by those who make them.”

Page 768—Buchanan mentions 8 *Distillers of rose-water* and essences at Patna City and 3 *Chambeli-flower-oil-makers* at Bar.

Page 777—In *Table 44* Buchanan records the exports and imports of *Perfumes and essences* as follows :—

Patna	Exports	Rs. 3,100	Imports	Rs. 5,300
Patna and other Divisions ...	Exports	Rs. 4,000	Imports	Rs. 5,950

The above figures clearly show the economic value of the perfumery trade (in A.D. 1811) of which *rose-water* was one of the items. Buchanan's remarks on the manufacture of articles of Indian perfumery are highly informative and useful for the history of this perfumery and hence may be quoted in extenso. Speaking of the “common artists” he says :—

Pages 631 ff.—“(Those who distil *perfumes* complain that the business is overstocked and that the prices have of late been much reduced; but they still seem high, and no dependence can be placed on what they say, no two of them agreeing in their account but *they are in easy circumstances*. They use a *copper still*³ which may hold from 150 to 200

1. Vide *Poona Orientalist*, Vol. III, Nos. 1-2, pp. 1-8, 1943.

2. Published by Behar and Orissa Research Society, Patna. Vol. II, p. 689—Buchanan refers to betel-leaf-sellers as follows :—

“The *Tambul* is retail *betel-leaf* and the *lime* used for chewing, a few in shops but mostly in the streets. They are not all of the *Tambuli* Caste. They have as Capitals from 8 annas to 50 rupees except in Patna, where some have to the extent of 500 Rs.”

3. This is the *Dolayuntara* referred to in the Sanskrit verses about *rose-water*. In these verses the *दोलायंत्र* is called *ताम्रज* (made of copper). For a picture of *Dolayuntara*, see Plate 11 (10), on p. 114 of *Arya Medical Science* by Thakore Saheb of Gondal, London, 1896. The Sanskrit verses call *rose-water* “*गुलाबपरमाभिः पुष्पद्वयः*.” It is very cold (*सुशीतल*) and fragrant (*सुगंध*). The use of silver basin (*रोष्यपात्र*) and silver tray (*रोष्यशराव*) referred to in Sanskrit verses is absent in Buchanan's description.

lbs. of water, and has a flat head. A tube bent at right angles conveys the vapours into a *copper cucurbit*, which serves as a recipient and is placed in a wide-mouthed earthen vessel to contain water for condensing the vapour. The whole apparatus and the place where it stands are exceedingly slovenly.

The artists make three kinds of water, from roses, from the *Pandanus* (Keara)⁴ and from the lime (*citrus*); but the quantity of the two latter is very trifling. The rose water is either single or double-distilled, the latter being drawn a second-time from fresh roses. These flowers are only used when fresh gathered. Even in three hours they are supposed to lose their perfume. The single-distilled rose-water sells, by whole-sale, at from 12 to 13 Rs. and by retail, at from 16 to 20 Rs. the *man*, which weighs about 76 lbs. Each distillation, according to some, for a *man* of water requires 22,000 roses and about 56 seers of water, of which 40 only are drawn off. The double-distilled rose water retails at 2 Rs. a seer (1 ⁹/₁₀ lb.), and being only in demand among Europeans, is not made except when commissioned. Others allege that all is distilled twice, as such alone will keep, and that what is required for common use is diluted with water when wanted.

The other waters are distilled in the same manner. All their essences consist of sandal-wood oil impregnated with various smells, for imbibing which, this oil has a strong capacity. The best workmen distil their own sandal-oil but some is imported. The sandal wood comes from Malabar. It is rasped, soaked three days in a little water, and the oil is found floating on the surface of water in the recipient, and distilling over into this the waters from various substances such as roses, the flowers of the Bel (*Jasminum Sambac W.*), spices, the roots of the Andropogon called Kus, the flower of the Chameli (*Jasminum grandiflorum*), that of the Mulsari (*Mimusops Elengi*), Agar wood (*Agallochum*), the flower of the Keara (*Pandanus*), the flower called Juhi (*Jasminum*) and even clay. The most common by far is the rose, and what is in almost universal use among the natives of India, as *atour of roses* is sandal-wood oil impregnated in this manner, which, according to its quality, sells at from 1 to 2 Rs. for a rupee weight while the real essential oil of roses costs 50 Rs. at Patna. The sandal oil seems to extract the whole perfume from the rose-water, as this passes into the recipient.

4. This is the *Kataka* or *Katuki* plant of classical antiquity. Kalidasa refers to it:—
 “केतके हृदिभिर्नैः” (*Meghaduta* 23, *Raghuvansha*, VI. 17; XIII. 16; II. 23 (“हृदिभिर्नै विषते हृदिभिः केतकीनाम्”)) and II. 20 (flow. of this plant). *Ghoshakarpura Kavya* 15 refers to it:—
 “प्रतिमां यवनानि केतकानाम्.”

The next most common essence, called *Motiya* is made from Bel flower (*Jasminum Sambac*), and is cheaper than the common essence of roses. The only other essence commonly used is that impregnated with the odour of spices and called *Mujmua*. The ingredients vary from 5 to 50, but cloves, nutmegs, greater and lesser cardamoms, and saffron are the most common. It sells for from 1 to 3 rupees for a rupee weight (3 drams apothecaries weight) but is not at all agreeable to my sense of smelling which is indeed the case with all the others. By the skill, however, of *European artists* they might perhaps be rendered useful ingredients in perfumes as they preserve the smell of various very agreeable odorous substance, which could not be readily procured in Europe, especially that of the *Pandanus*⁵ flower. The most strange of these essences is that made with the clay which communicates to oil of sandal-wood the smell, which dry clay emits, when first wetted, and which to me, is far from agreeable. It sells at 1½ rupee for each rupee weight. The best sandal oil costs here about half a rupee for the rupee weight.

The workman of Bar, instead of a distilled oil impregnate an expressed oil with the odour of Chambeli flower (*Jasminum grandiflorum* W.) At the beginning of the flowering season they take 82 seers (about 169 lbs.) of the seed of sesamum (Til), and every fair day during the season add to one-half of it as many flowers as they can collect, which may be from one-fortieth to one-fourth of its weight; next day these old flowers are picked out and put to the other half of the seed. The season lasts about three months and the whole quantity of flowers may in that time equal the whole weight of seed; but one-half of the seed is impregnated entirely with the fresh flowers, while those given to the other half are withered, and have lost part of their strength. The seed is then squeezed in a common oil mill, and each gives 12 seers, or about 24 lbs. of oil; that impregnated by the fresh flowers being of twice as much value as what is impregnated with the withered. I am told that the 12 seers of the best kind are mixed with 96 seers of common oil of Sesamum, and the mixture here sells at half a rupee for the seer so that it brings 54 Rs. The people who make it valued it at 12 Rs. and thus made it appear that they lost by

5. Vide Dr. Sadgopal's article on *Kewda* in "Soap, Perfumery and Cosmetics, May, 1937. The *Kewda* or *Pandanus Oloratus* L. Occurs in India, Arabia and Persia. In India occurs in Bengal, South India, Central India, United Provinces and North-West India. The superior type of *Kewda* is found in Ganjam Dist. of Orissa.

the manufacture. *but they live easily*,⁶ and do no other work than to pick the flowers from among the seed, and mix and retail the oil. The inferior oil at the same rate will bring 27 Rs. and the total value will be 81 Rs. The real charges are 82 seers of Sesamum seed, at 25 seers a rupee = 3 Rs. 5 as. 9 pies : 44 seers of oil of Sesamum, 12 Rs. 12 annas ; 2 *mans* of flowers, 12 Rs. ; expressing the oil 8 annas, . total 19 Rs 9as. 9 pies. ; profit 61 Rs. 6 as. 3 pies.

Those who express oils from various seeds (Teli) use the same mill exactly that is used in the districts hitherto surveyed.

Buchanan's survey of Perfumery industry as recorded in the foregoing extracts shows European interest in Indian perfumery at the time of the British advent in India. As a result of this very interest India lost her world markets and European nations began seriously entering the domain of perfumes also. A time came when France and Germany captured all the markets for their aromatics and to-day we find India, the cradle of Perfume Industry, as one of the biggest consumers of foreign perfumes. While Europe made rapid advance with the help of modern scientific knowledge, India lost even that much which it treasured so successfully for centuries past.⁷

It appears from Buchanan's account of the distillation of Rose-water in A.D. 1811-12 at Patna that owners of big gardens were cultivating the rose at this centre with a view to supplying the necessary rose-flowers for manufacturing rose-water and attar of roses as well. We must now trace the account of this manufacture by Indian perfumers earlier than A.D. 1800 and find out the exact chronology of the rose-water manufacture as started by Indians. As there can be no distillation of flower perfumes without

6. This remark reminds me of the following stanza of the *Pañcatantra* about the lucrative character of perfumery trade :—

“एषानां गन्धिकं एव हिमनैः काञ्चनादिभिः ।
तत्रैवेन च यत्किं तत् श तेन प्रदीयते ॥”

7. Vide Dr. Sankopal's article in *Indian Socy Journal* (July-Sept. 1943) on “An up-to-date survey of Indian perfumery industry”. I note some points from this interesting article :

(1) Big centres of perfumery industry sprang up at Kanauj, Jaunpur, and Ghazipur, a mention of which is made in *Shah Nama* of Firdousi (c. A.D. 1030).

(2) Some of the old houses of perfumery at Kanauj are even to-day masters of millions and billions.

(3) Avicenna, the Arabian physician was well versed in the art of making perfumes. When Sulaiman Saladin made his triumphant entry the walls of the mosque of Omar were washed with rose-water brought from the East.

flower-gardens Buchanan has taken care to record his notes on these flower-gardens, in which *rose* was prominently cultivated as will be seen from the following extract :—

Pages 518-519 (Vol. II) — *Flower Gardens.*

“Flower gardens for ornament are not quite so much neglected as in Bhagalpur. Raja Mitrajit, two or three other Zemindars, and many merchants of Patna have such ; but they are far from being neat, or from containing a great variety of plants. The only garden worth notice is one belonging to Baidyanath Babu, a banker of Patna. In the whole of both districts there may be 200. The *garland makers* especially near Gaya, raise a considerable quantity of flowers for sale : but they study very little to make their garlands ornamental. They make them of whatever flower is reared most easily at the season, so that they have little or no variety. During the cold season when I travelled through the district, no flower almost was in use, except that of the *Tagetes erecta*. Those who extract essences have several flower gardens at Patna and Bar. At the former between two and three hundred persons have *rose-gardens* containing from two to ten Kathas each that is from 1/15 to 1/3 of an acre. The *rose* which is cultivated in these gardens is said to have originally come from *Busorah* and at Patna is called by that name ; but in Bengal it is called the *Patna rose*. It does not seem to differ materially from the common *red rose* of European gardens (*Rosa gallica*). It is propagated by *cutting* in the rainy season. The cuttings are planted in a bed until they take root and are then placed three or four together, in one hole, the holes being from two to three cubits distant. Every two or three years the bushes are pruned. They flower from the middle of February to the middle of May and must be watered in the dry season. The flowers which are rather smaller than those in Europe, sell to the distillers at from 1000 to 4000 to the rupee. They are allowed to expand fully before they are sold. At Bar those who make essences use almost entirely the *Chambeli*, which botanists call *Jasminum gradiflorum*. I have very strong doubts whether it can be considered as a different species from the common jasmine of Europe.

Most of the gardens belong to the persons who make the oil. These pretend to be losers by the concern so that little dependence can be placed on what they said as *they live very easily* and perform no kind of manual labour. They alleged that all the gardens amount to 25 bigahs or about 17 acres ; but others alleged twice the extent. I could procure no estimate of the value or the quantity of the produce of a bigah on which the least dependence could be placed.

The gardens are managed much like those of the rose tree but the plant does not require pruning. It is not supported, as it grows more erect than in Europe. It produces its flower in the rainy season. A great many officinal plants are reared in the gardens near Patna but I shall here pass them over as I have done those which grow spontaneously because I could say nothing on the subject but what being entirely scientific, would be altogether unintelligible except to the botanist and physician."

The above account of the growing number of flower-gardens in Bihar and in particular of the rose gardens which supplied rose-flowers for the distillation of rose-water is highly instructive and interesting. We may now link it up with the account of the cultivation of roses as described in a Hindi work "*Bag Vilas*" composed by the Court-poet Śiva Kavi, patronized by Maharaja Daulatrao Scindia of Gwalior (A. D. 1780—1827). Daulatrao was a ruler of aesthetic tastes. He was a great lover of gardens and gardening and laid out the famous *Phool Bag* of Gwalior. Śiva Kavi composed this treatise to please Daulatrao. In this treatise he refers to the four types of roses and many other varieties of fruit and flower trees worth planting in a model garden. About roses this poet says :—

— "उल दे आशिनपासमे, पुनि सुन लेइ जवाब ।
 एत मास मे कलम कर, सीबो सरस गुलाब ॥
 आवे रबी गुलाब में, तबको हुनो विधान ।
 हम्मपक मरि माप में, नी(न दोसै जान ॥"
 — "वेचन्द सरस गुलाब को, अस सेवनी मुमान ।
 बहुते सदा गुलाब को, जगर एक अभिराम ॥"

Both Daulatrao Scindia and his Court-poet Śiva Kavi were contemporaries of Francis Buchanan and hence their interest in gardens and cultivation of roses at Gwalior, c. A. D. 1800, is contemporaneous with the cultivation of rose gardens at Patna so graphically described by Buchanan in A.D. 1811-1812. As I have not read the *Bag Vilas* of Śiva Kavi I cannot say if this treatise contains any reference to the manufacture of rose-water at Gwalior c. A.D. 1800.

5. Studies in the History of Indian Cosmetics and Perfumery A Critical Analysis of a Rare Manuscript of Gandhavāda and its Marathi Commentary (Between c. A.D. 1350 and 1550)*

In a paper contributed by me to the *Journal of the Bombay University*,¹ I have given a critical analysis of a rare treatise on the science of cosmetics and perfumery represented by a single MS in the Rajdi Collection of the Bhandarkar O. R. Institute, Poona. This work is called the *Gandhasara* by Gaṅgādhara. In the same bundle in which I discovered the *Gandhasara* there is another work written in the same hand called the *Gandhavada* with a Marathi commentary. Folios 1 to 27a comprise the *Gandhasara*, while folios 27b to 49 comprise the *Gandhavada* with commentary. After the colophon of the *Gandhasara* the MS of the *Gandhavada* begins as follows :—

Folio 27b— “ वरनलिनवदनमिलता जलजदनलदसहिता
मदमदनलग्नविहिता मधुलग्नकरजपूदिता
करालविषोषिता निशाकरसंयुता ॥ कृतावसंतसेवित्य भुजंगविभूषिता ॥”

॥ हरये नमः ॥ गंधवादा ॥

नखपलव भागपल गंधं कृष्णागरपलं ।
नख द्विपलकं चैव द्विपलं जाति कोसकं ॥
मांसी शैलजतालीस उशीरशतपत्रकं ॥ १ ॥
चंपाजलद लोचान गंधलासटि पुनकं ।
पृथक्पलमितं भागं बकं दवणप्रचितं ॥ २ ॥
सस्वाचांवरं चैव शृषकृदादशशोणकं ।
त्वगेला च लंगं च कोष्टं चेतु शदशाणकं ॥ ३ ॥
त्रिवारं वज्रपूतं च नखं च पूतवाचितं ।
पुष्पावासं सुवासं च केतक्यादलपंचकं ॥ ४ ॥
॥ मन्मथोदयपिटक ॥

टीका ॥ श्रीखंड पलें २० । अगद पलें ६ । नख पलें २ । जायग्री पलें २ । मांसी पल १ । शैलज
पल १ । तालीसपत्र पल १ । बाल पल १ । भोल श्री टांक १२ । पाचि टांक १२ । अंबसा टांक १२ । तज
टांक १२ । येला टांक १२ । लवंग टांक ६ । कोष्ट टांक ६ । नख टांक ६ ।

**New Indian Antiquary*, Vol. VII, pp. 185-192.

1. *Journal of Bombay University*, Vol. XIV, Part II, pp. 44-50.

तुं तनीं न तवेद होति वेदुं दलता पालिने । तें तुं मोत्रयिने अदि कादिता पालिने ॥
कुतावा वायु दीजे ॥ उगम वायु होय ॥ रात्र्या सोम्य देव योग्य बुद्धा होए ॥ अति उगम होए ॥ श्रीमथ
उगमनि पालिने ॥ हा महागुण्य होय ॥

माभी वज्रुन तेवेली लवंगाधनिशा वृषक् ।
अष्टमाथ न्येवान्ये गाडिनसय तेलने ॥
दव्वा मरु ब्रह्मी च येनारस वृषक् चतुः ।
वर्तुः वेपथ्विश्वा वृषक् द्वादशमासिक ॥
विशति मधुमुस्ता च पशुपुनागकोटयोः ।
वृषवासिकं सोम्यं निष्ठा ज्याज्या पले पले ॥
पनार्धं सर्वथ येन्य दिवार् वक्ष्यमाहितं ।
नख पुनपाथ्यं च पवारितलासलका ॥
पुपवशां न्येतेशशी रात्रयोम्यं च विमदा ।
वर्षाद्वक्ष्यं उर्वारिजनस्य मनोहरं ॥

टीका ॥ माभी पले ८ । वज्रुन म्दणना भोलादिपुन पले ८ । येवेली पले ८ । लवंगा पले ८ । वाधि
हर्द पले ८ । गाडिना पले ८ । मधवा पले ४ । नल पले ४ । तेलज पले ४ । दववा पले ४ । ब्रह्मी पले
४ । तोतामु पले ४ । वर्तु पले १२ । वेपथ्वि पले १२ । मधुमुस्ता पले २० । पत्रक पले २ । पुनाये
पले २ । कोट पले २ । हातदि पले १ । जाडिपल पले १ । येन पले ११ । नख तुं तलीनि पालिने ॥
वक्ष्यमाहित । तीनि वेपथ्वि ॥ अथ सत्तासत्तावी भावना दीजे ॥ कुतावा वायु दीजे ॥ रात्रवस्य श्रीमथ
जनम्य मनोज्ञ बुद्धा सर्वविगहरी ॥ २ ॥

Folio 31 — अथ वस्तुदीपरीक्षा ॥

— वस्तुदीपरी करणी ॥

Folio 32 — पुनरपि वस्तुदी करणी ॥

Folio 32b — अथ वर्तु करणी ॥

— अथ ज्वादिनी करणी ॥

Folio 33b — “ कावेच तेल ”

“ तैव्यं वामरकावरी च बहुला लोचन धीखंडकं ” माति वागरकं ” etc.

Folio 34a — “ एला काच मेखवली ”

Folio 35b — “ केवे कुतावा वायु दीजे । उगम बुद्धा होये । ”

Folio 36-37 — Recipes for several varieties of बुद्धा ।

Folio 37 — “ सुवैच तैल ”

Folio 38 — “ मोत्रराज हत वादि ”

Folio 39 — “ अथ गंधराज ॥ ”

Folio 40b — “ या नाव म्वालयसमु ॥ ”

Folio 41a —“ ॥ या नाव राजमनोह ॥ मानिनीमानंभंजन—गंधराज । होये । ”

Folio 41b —“ या गंधराजा नाव कंदर्पकोलाहल ॥ ३ ॥ ”

—“ या गंधराजा नाव कामिनीमोहन ”

Folio 42a —“ या नाव मदनकामेश्वर ”

—“ या नाव जनांकुस । रामाग्राणह ॥ ७ ॥ ”

—“ (सर्वे जनांकुशो नाम कामिनीग्राणवहभाः) ”

Folio 42b —“ या नाव कंदर्पसेखर ”

Folio 43a —“ हा गंधराज इन्द्रेनिर्मिला (“ तैलं देवेन्द्रनिर्मितं ”) ”

Then follow some more recipes for गंधराज, each ending with a certificate
“ होये ” or “ गंधराज चोखट ”

Folio 45b —“ अथ धूपाची करणी ”

—“ राजयोग्य धूप ”

Folio 46a —“ अनंगसुंदर (धूप) नाम ईदं निर्मिला ”

—“ या धूपा नाव कोलाहल ”

Folio 47 —“ या नाव कुमारधूप ”

—“ दिव्यवर्ति ” (“ उत्तमवातिया होति ”)

—“ या नाव सुंदरवर्ति ”

—“ या नाव भूपालवहृषवटि ”

Folio 47b —“ अथ उद्यति ”

Folio 48 —“ ऊदमेलचणी ”

—“ सुगंध तैल ”

—“ कावा तैल ”

Folio 49 —“ ॥ इति शुद्ध गंधराज आणि तेलिया मालिवा तथा सुगंध तथा काचिया तेल
तथा कस्तुरीची परीक्षा व करणी व जवादिची करणी तथा कर्पूरकरणी तथा धूपकरणी गोमिया तथा
उदवस्ति शिबुक मलारा परिपूर्ण जाला असे ॥ ॥ इति गंधवाद्संपूर्ण ॥ ”

Folio 49a —

शुद्ध	शुद्ध	कस्तुरीकरणी	शुद्ध	शुद्ध
शुद्ध	शुद्ध	मृगनाभिःकस्तुरी	शुद्ध	शुद्ध
शुद्ध	शुद्ध	भास्कर चोखट	शुद्ध	शुद्ध
शुद्ध	शुद्ध	जवादि	शुद्ध	शुद्ध
शुद्ध	शुद्ध	जवादि	शुद्ध	शुद्ध
शुद्ध	अथ	काचेतैल	शुद्ध	शुद्ध
	कस्तुरीकरणी	काचतैल	शुद्ध	शुद्ध
		शुद्ध		शुद्ध

Folio 49b —

पुष्पा	अवधि	गंधराज	गंधराज	धृप	गंधराज
पुष्पा	गुणध	"	"	उदबलि	"
पुष्पा	गंधराज	"	"	टटिषा	"
पुष्पा	"	"	धृप	उदबलि	"
इति गुणधर्तलं	"	"	"	"	"
गुणध अवा वि शुद्ध	"	"	"	धृप	उदबलि
अवादि	"	"	"	गुणध	"
अवादि	"	"	"	"	गालिया
"	"	"	"	गंधराज	भाषा गंधराजानुक्रमिका
मदनकावेधर	"	"	"	"	समाप्ता

The MS containing thesetwo treatises viz. (1) the *Gandhasara* and the *Gandhavada* with *Bhaṣa* commentary appears to be about 200 years old, judging by the condition of the paper on which it is written and also its script. The question about the authorship and chronology of these two treatises may now be discussed as follows :—

(1) Is it possible to suppose that the treatise *Gandhavada* is also the work of Gaṅgadhara, the author of the *Gandhasara* ?

There is no definite evidence to answer this question in the positive or negative.

(2) Who is the author of the *Bhaṣa* or Marathi commentary on the *Gandhavada* in Sanskrit ?

This question also cannot be answered definitely though it is possible to suppose that the author of the *Gandhavada* himself composed the Marathi commentary on his own work.

(3) What is the chronology of both these works and the *Bhaṣa* commentary ?

All these texts are certainly more than 200 years old. The inference based on the condition of the manuscript and its script finds corroboration from the old Marathi language of the commentary. At any rate the form of the Marathi language of the commentary will provide us some criterion to fix its chronology approximately. I note below some words and expressions from the commentary to enable scholars to fix its chronology :—

— बेला (Sans. पला) (27)

— कुंठे सलीनि (27)

— पालिने, छेत्रे (33)

— होए, होये (28)

— जाए (30)

— मित्रो शीत्रे (33)

- | | |
|--|----------------------------------|
| — वायु दीजे (27), भावना दीजे (fol. 28),
दिजे (29), बालदिजे (32) | — रत्ने बाहिजे (33) |
| — राजे ठाकुर (34) | — गंधराज (43) |
| — उतरालिया मेलविजे (34) | — तिलेल (45) |
| — दारबिनी (35), दारबिनी (36) | — तेणे भिजोनु कैं पालुनु (46) |
| — चोखट (35) | — चोखट (46) |
| — खोबरे जुने (38) | — बातिया होति (47) |
| — हाते मदींनि वागो साहिजे (40) | — चूर्ण करुनु खलिजे (47) |
| — सादिराचा डोकु (42) | — सिलारपु मधु पाणें कालविजे (47) |
| — ऊद मेलवणी (48) | |

Judging by the above forms of the Marathi language of the commentary I may tentatively assign this commentary to the latter half of the 15th century or the middle of the 16th century A.D.

The Marathi commentary is useful linguistically because it gives us the vernacular equivalents for some of the Sanskrit terms in the text of the *Gandhavada*. In the MS of the *Gandhasara* some tables of aromatic materials are recorded on some folios. I cannot say if these tables form part of the text of the *Gandhasara* of Gaṅgādhara. I reproduce these tables below as they contain both Sanskrit and vernacular terms :—

Folio 7a —

सूक्ष्मेला	लवंग	चंदन	शोफ	मोथ
तज	कूठ	एलावालुक	जायफल	चंद्रत्वक्
जायपत्री	वालाक	कुंकुम	नागकेसर	पुष्प कंकोल
हिरडे	रोहिस	धसिया	लवंगत्वक्	शूलैला
पत्रक	नीली	चोरपुष्पी	रेणुक	पत्रक

Folio 9b —

पंचक	कूट	नली	एकांगी	तगर
शैलज	सुरा	मुस्ता	चोरपुष्पी	मांठी
बाल	उशीर	तेजवती	नागकेसर	बोल
कर्चूर	लताकस्तूरी	विहाणी	कर्पूर	शियंगु
शोफ	मदन	रोहिस	मद्य	पत्रक

Folio 11a —

मांसी	हिरडे	नागकेसर	गडिवन	श्वैलेला
पचक	मुरा	कूट	मुस्ता	वालक
शटी	तज	एकंगी	पचक	सिद्धा
वीक	रेणुक	तगर	लगस	निचपपत्र
उशीर	शिहाण	नख	एलावालु	चंपक

Folio 11b —

मिपंगु	हरीतकी	शटी	लवंग
शीक	नागकेसर	उशीर	श्वैलेल
सुदमैला	मीचककोळ	कूट	जाइपत्री

Folio 12a —

चंदन	जाइपत्री	पंकोल	लवंगत्वक्	जाइपले
पचक	कूट	सिद्धा	तर्ज	नख
खवास	मुरा	इंद्रत्वक्	हिरडे	एला
कुंकुम	एलावालुक	लवंग	नागकेसर	अगुद
गाडिवन	बोल	कर्पूर	शटी	मांसी

Folio 16a —

अगद	चंदन	देवदारु	मुरभी	सिद्धा	मांसी	मुरा
वालक	कूट	मुस्ता	गल	लक्षा	गुग्गुलु	श्रीवरस
वाल	कुंकुम	सलकी	शैलज	कुंकुम	नागकेसर	हिरडे
गंडीवना	बचा	मीचककोल	आतीकोप	जाइफल	पचक	श्वैलेला
तालिस	तमाल	शटी	नख	सुदमैल	खदास	कर्कट
लवंग	सरेस	दमन	मरुच	अशोक	महामुग्ध	चंदत्वक्
	सोफ	गंधमुस्त	मिपंगु	लावत्वक्	एलावालुक	पत्रज

Folio 20b —

कोष्ट १	मुरा ६२	पद्मक १०	सारिवा ४४	मोय ५	दिरडे ५०	चोर २३	पत्रक ४२
सोच १८	केशर ४७	कचूर ४	एकामी ६३	वाल २२	लजुरको ४३	अमर ६	लता ५१
उशीर ६१	वर्णेलतो १७	त्रियंगु ६४	तगर ३	एलावालुक ४४	मांसी २६	बले ५२	बोलु ७
हल्मेल १५	कंकोल ६०	बणिया २६	सोफ २६	श्रीवास ६	कुडुद ५६	गुगुलु	सले ४०
गंधमुस्ता २२	जाइपत्री ३५	लवंग १६	चत्रलक ५७	राल २८	नली २७	नल १०	देवदाह ५२
लंबगलक ५६	जाइफल १४	पुष्पकंकोल ३२	रोहिस ३०	दमन ५५	अशोकी १२॥	मरुवा २६	वना २६
बोल ३४	रेणुक ३०	तज ५८	सुदमेल १३	सरसी ३८	लाढो ३७	तमालपत्र ५४	मुरमो ११
तेजवती ६१	नली २	महामोघ ४५	चंपक २०	व्याघ्रनली ४६	शेखर ८	सुल ४१	सकगरी २१

Folio 27a —

वलि:	पद्मा	पर्वत	पुत्री	देवी
गौरी	युका	सज्जन	रका	विदा
चंद्रा	काता	भीषण	केशी	चंद्रा
विदा	प्रोका	बलभा	सका	शुदा

The foregoing tables with the exception of the last one are perhaps intended to help the actual manufacture of perfumes. They give at a glance the several aromatic ingredients and their suggested combinations. The elaborate table on folio 20b specifies the proportions of these ingredients. It is for the Indian manufacturers of perfumes to understand their exact significance and compare these proportions with those now in practice.

I now close this paper by noting below the names of materials mentioned in the Marathi commentary on the *Gandhavada*. —

Folio 27 — श्रीखंड, अमर, नल, जायपत्री, मांसी, सेलज, तालीसपत्र, बाल, भोल, पाचि, अंबद, तज, यला, लवंग, कोष्ट, नूप, फुलांचा, बासु, बुका, भीमघ.

- Folio 28** — बङ्ग, गरिपुत्र, मेकरी, चावेरुदि, गाडिन्ना, मर्या, सेलत्र, दबना, बझी, मेर्या, कर्ण, चपिकलि, मरुमुस्ता, पत्रक, पुनादे, हाडदि, जाडफन, गेर, कर्ण, म्हायामी, बाबरी, तगर, गाली, छलिरा, दबणा, बापा, पुनाच, वेदन, कर्ण, चाडि, गडीयना, गडुला, बीये, मुस्ता, बंबर, लोवान, तत्र, तेलिया, बेरी, बाबरी, कसुरी, खादि ।
- Folio 29** — “पुती म्हाता मांडि,” “नत म्हाता गांठीवना,” गडुने, भोलवरी, बाळाबाळा, पुनाचा, “त्वचा म्हाता छलिरा,” “चंडा म्हाता छत्र,” “मुर्शि म्हाता टांक,” “वृदि म्हाता येला,” कांबरी, कबाच, नलिबा, कबोरी, म्हाणगर, “पलास्या म्हाणते तेलिया,” “पुति म्हाता मांडि,” तड, नगर, भोल, लोवान, देवदाह, पत्रत्र, गुष्टा ।
- Folio 30** — “पैतिक म्हाता जगक,” तेव्या, “धूच म्हाता लोवान,” पांच, बडुपुण्य, पुनाग, कडीरा, एला, बाळाबाळा, भोल, वेदनयेलिवा, तवसी, केम्ह, “आगुडपुण्य म्हाता दबना,” निवेला, तवसीर, चाडि, तेवंतपुत्र, “हा बुका सिघणे” निघत्रविला ।
- Folio 31** — दबणा, कोष्ट, बापा, कर्ण, मोलरी, चपिकलि, “नत म्हाता तगर,” “गोधा म्हाता गडुले,” कवरी, “नामिकोरा म्हाता कसुरीये खोलडे,” मांकोरु, रातामन, जाडपल, केष्टेल, पिपलीमूल, पीठबन, पोश्त ।
- Folio 32** — ब्राम्हा, वेलाचमो, कसुरीकोसले, देवदाह, चोपरा, गुंडमकेसर, मदिपीप्य, शुद्धमी, मोरपु, गोरोचन, कडुणी, केनदे, काप, मोचखु, तुप, मधु, “पुना ले,” लोवान, राम, (“हाते रवदिने”), शुद्धसितारु, कंदकर्पूर, “राजान हाडुलाका मातु राधिने,” “केनसत्र मापुर्णि वरि हातिने । माउते केनथे दबदिने । दावण बहुत पातिने — “उदयमास्कर ।
- Folio 33** — गुष्टा, चोपरा, मेग राओ स्लेत, लोमलु पीबाळा, चना, कटकी, नेतकी दले, जवादि मलकि, जवादिची चांरी, मेणतेल, शुद्धरीय ।

2. “This (Rukapowder) owes its origin to सिघण, who is possibly the Yādava king Singhapura (A.D. 1210-1247). The reference to सिघण is also found in the text of *Gandharvada* which reads— “यो बुका सिघणे निपायो राजवत्स रूप मे हुगकायो.” Evidently both the text of the *Gandharvada* and its Marathi Commentary are later than A.D. 1300 or so.

In the *Rasavahatkalika* of Kāyastha Camupda (A.D. 1475-1509) a physician called मेरवान् is said to have administered कम्पारस to king सिघण :-

“सिघणकोणिसावाय भूरेभोजवाग्निरे रसम् ।

दम्भान् मेरवानन्दो भूयो श्रमाष्टकं ददौ ॥”

(Vide my paper on the “Dates of the Works of Kāyastha Camupda”. *Poona Orientalist*, Vol. V, pp. 6-13). Singhapura collected many physicians round him. A भिवगामणी called माचव composed an inscription for this King—Videp. 75 of *Sources of Medieval History of Deccan*, Vol. I (1930) by G.H. KHARE.

- Folio 34** —सतपत्र, जायल, करवाल, जवदाण, गंधराज, तिलेल, मालतिपुण, “काचकुपिये ठेविजे,” काचलेल, शुद्धतैल, गुंठि, गुणुल, धणे, जीरे ।
- Folio 35** —मोलथी, तजनलिक, मरीच, कंकोल, पत्रज, कापूर, (“चोखट बुका होये ”), दारचिनी, छलिरा, कजूर, चापेलकुल, भद्रमोथ, चंदनसेन, छत्री, छिलारगु, जवमापरमे ।
- Folio 36** —मोलसरी, अश्विहलदि, लवंगकाडी, कोरु, मोथ, कथाबा, बंधर, गुहाबा, तवाक्षर, चांपा, असोष्ट, तेल्या, मोलथी, चंदनपापडा ।
- Folio 37** —चंदनपपली, लोथानु, तवाक्षर, करंवाल, जवदाणा ।
- Folio 38** —हण्डे, लासमेड, राकाली, गुल, “कांचलेनि गालुनि येइजे ”—“भोजराज-कृतवादि,” नवनीत खोलडे, खोबरे जुनें, मोचरगु, सयपुन, मनु, चना, कालीराल, जवादिमुद्द, पोयिसराति ।
- Folio 39** —“काचपात्रि धोरंधे,” मेण खोखट, जुनें खोबरे, “सकु म्हणता लाख,” संपेकली ।
- Folio 40** —“तोंडी बेलणी सांपणी दीजे ॥ बेलणी सिद्धि ॥,” “मोहर वरती कीजे,” “लोखंडाची आडणी,” “रानसेणी तथा कोलिसे भरिजे,” काचपात्रि, सयपुन, धूप, “म्लक्ष म्हणता सिलारस,” “चोल्या म्हणता लोवान,” पातालयंत्रे काठिजे, “अरण्यतुलसी म्हणता वावरी,” “पीतगंध म्हणता अगक,” “उत्विण म्हणता लोथानु ”—“उत्तुमार ” ।
- Folio 41** —“सिंसक,” “पीत म्हणता अगक,” “तिलज म्हणता तेल ” ।
- Folio 42** —सांपणी, कतुर, हिरडा, सिंसपा, नलिकतज, खदितावा डिकु, “मृगीचर्म म्हणता खोलडे ” सैल, “किमिज म्हणता लाख,” हलदि, जाईमोगरा, तेल्य ।
- Folio 43** —ब्रह्मो, साखर, वबेरी, देवदार चोपडा, जायपत्री, सहात, सीसकाडी, खोलडे, भाजणी, तेल्या, लवंगकाडी, पदक, सिरीस, छत्रिवा, सीतामा, चोखा, नाबात, मेणराटी ।
- Folio 44** —सहात, घांउतेल, हिरडेदासि, सांपायणी, ब्रलीटा, सीस, हरडा, मोंद, पुल, हलदी, “देवदार सेर दांड १ ॥,” गुल, साखर, केरडा, चापेल ।
- Folio 45** —चंदनगभा, “नालकायंत्रे अथवा पातालयंत्रे चडवावे,” देवदार चोपडा, जाईये फुल, धूत, भाजणी चोखट, छुरडी जुनि, जह्नी, नाबात, “ब्रह्मो तोले २,” “नागकाठिडीचिया रसा ” ।
- Folio 46** —“हेम म्हणता अगक,” “किमिजंतु म्हणता लाख,” पत्रज, पत्तोर ।
- Folio 47** —हिंगुल, काख, काथ, तपु, सौराचा डीकु, “बणे प्रमाणी वटो कीजे,” मोष ।
- Folio 48** —चानीकसुची, धायकुल, येलावालुक, त्रियंगु जायपत्री, रेणुके, पदक, काकडासिंगी, डुरालभा, कमलकुल, दफते आणि कलाख, मंजीठ, लोथ, वासनासि कसुरी, बारवाला, केसर, येरंडीमगज, धणिये, करंवाल, जीरा, दवणा, नागकेपर, पाचि ।

The foregoing analysis of the Marathi commentary reveals in detail the variety of aromatic and other materials that were used in Medieval India for the manufacture of cosmetics and perfumery. Additional points furnished by this analysis are the following :—

(1) Sanskrit and other terms and their equivalents are recorded as follows:—

“ हेम मण्डप भगवत ”, “ किमिदं तु मण्डप लास ”

(2) Bhojaraja mentioned on folio 38 in the expression “ भोजराज इत्येवमिति ” is evidently King Bhoja of Dhara (c. A.D. 1050).

(3) *Singhapa* referred to on folio 30 as the originator of *guggu* powder is possibly identical with the Yadava King (गुग्गु) ((A.D. 1210—1247).

(4) It appears that glass-vessels were used in connection with the manufacture of perfumery. *शक्वपि* or glass-bottle is mentioned on folio 34. *शक्वपात्र* or a glass-vessel is referred to on folios 39 and 40.

(5) A piece of woolen blanket was used as a strainer (“ *कास्तेनि गालुनि धेये* —” Folio 38).

(6) As regards the *पातालपत्र* (Folios 40 and 45) and the *नालकापत्र* (Folio 45) referred to in the commentary please see plate IV (21 and 22) in the *Short History of Aryan Medical Science*, by Thakore Saheb of Gondal, London, 1896.

(7) There are references to Cinnamon as *सिंहचिनी* (Folio 35) as *सिंहचिनी* (Folio 36). *Hobson-Jobson* (By Yule and Burnell, 1903) states that *Darchcenee* is a Persian word meaning *China-stick*. It records usages of *dar-chim*, dated A.D. 1563 and 1621.

(7) There are references to the word “ *कोपरे* ” in the commentary (vide Folio 38 — “ *कोपरे कुने* ”) meaning “the dried kernel of the cocoanut” which is called in English *Coprah* (vide *Hobson-Jobson*, pp. 253-254, where we get dated usages of the word like *Copra* (A.D. 1563, 1578), *Chopra* (A.D. 1584, etc.).

In view of the data recorded above I am inclined to fix the date of the *Gandhavada* and its Marathi commentary between A.D. 1530 and 1550 tentatively. This date is consistent with the reference to King Singhapa (A.D. 1210-1247) and the old forms of the Marathi language, not to say the present condition of the MS and its script, I hope that the students of historical linguistics and the students of the history of Perfumery industry of medieval India will fully exploit the rich contents of these new sources for their study viz the (1) *Gandhasāra* of Gaṅgādhara and the (2) *Gandhavada* with Marathi commentary.

6. Perfumes and Cosmetics in the Royal Bath*

c.A.D. 1130

Owing to early European interest in Indian Philosophy an impression has been created in European countries that ancient Indians were more concerned with the things of the spirit than with things of this mundane world, which contribute to the enjoyment of the pleasures of life. An English writer defined the ideal of happiness in his country as the possession of "a big boiler and a bull's neck." Though ancient Indians regarded spiritual values with utmost veneration and planned their lives on the basis of these values in accordance with a graded course of spiritual development, they gave due attention to the enjoyment of the pleasures of life so called, for which "a big boiler and a bull's neck" are, of course, necessary.

Gagabhatta (c. 1650-1675), who presided over the coronation of the Maratha King Shivaji the Great in A.D. 1674, quotes a verse in one of his works defining eight *bhogas* (objects of enjoyment) viz., (1) *Perfumes*, (2) *Women*, (3) *Garments*, (4) *Music*, (5) *Betel*, (6) *Dinners*, (7) *Bed* and (8) *Flowers*. With the exception of betel, i.e., the areca-nut with betel-leaf, etc., chewed in India, Indonesia, Indo-China, etc., all other items in this list of eight objects of enjoyment are recognised pleasures of life of the normal variety all over the world.

Students of the history of Perfumes and Cosmetics in India and outside will find in the above list of *bhogas* the mention of *Perfumes* and *Flowers* as legitimate objects of enjoyment. Accordingly a royal author Someśvara of the 12th Century, who composed an encyclopaedic Sanskrit work called the *Mānasollāsa*¹ (c.A.D. 1130) devotes many chapters to the description of the enjoyment of the different *bhogas* or objects of enjoyment. Among these chapters we find four chapters which are concerned with Perfumes and Cosmetics to be used by the King.

In India the importance of daily bath for persons of all classes has been emphasised by Hindu religion. Indian medical texts contain detailed instructions about the daily bath both for bodily comfort and cleanliness. Accordingly King Someśvara lays down detailed instructions about the

**The International Perfumer*, Vol. II, No. 8, pp. 111-113.

1. Only Vols. I and II of *Mānasollāsa* have been published in the *Gurukul Oriental Series*, Baroda. I am concerned in this paper with Vol. II (published in 1939), pp. 81-87.

royal bath in his work, viz., the *Manasollasa* (Vol. II, pp. 81-83). A brief summary of these instructions with special reference to the perfumes and cosmetics used for the royal bath may be recorded here :—

The apartment for the royal bath should be in the north-east quarter of the palace. Its ceiling, pillars and walls should be beautifully decorated with variegated colours. The king should take his bath in this apartment. Athletes (*mallas*) well versed in the art of massaging should massage the king's person freely with the tender palms of their hands by the use of fragrant and medicinal oil, which should be applied to the king's person by young female attendants with their tender palms of hands having nails shining like the interior of a *Ketaki* bud and having the capacity to produce a feeling of ecstasy in the king's mind. The perfumed oil used for massage should be prepared as follows :—

Take a quantity of the seeds of Sesame (*tila*) and perfume it with the strong odour of the flowers of *Ketaki* (*Pandanus odoratissimus*), *jāti* (*Jasminum grandiflorum*), *punnaga* (*Calophyllum inophyllum*) and *Champakā* (*Michelia champaca*). The seeds so perfumed should be crushed in a crusher (*yantra*) and the oil extracted from them. This oil is rich in perfume of the particular flowers used in the process. After massaging the king's person with perfumed oil of the above type an unguent should be applied to it. The method of preparing this unguent is as follows :—

Collect the roots of the following herbs :—

- (1) *Palaka* (Spinach ?)
- (2) *Tagara* (*Valeriana Wallichii* ?)
- (3) *Mamsi* (Musk-root or Indian Spikenard)
- (4) *Vajigandha* (Winter Cherry) = *Aśvagandha*.
- (5) *Puṣkara* (Lotus or a kind of *Costus*)
- (6) *Koṣṭha* (= *Kuṣṭha* = *Costus*)
- (7) *Paṣolaka* (Snakegourd)
- (8) *Musta* (Nut-grass or *Cyperus Rotundus*)
- (9) *Niṣa-dvayam* (two kinds of *Niṣa* viz., (i) Turmeric and (ii) Tree-turmeric or Indian barberry)
- (10) *Granthi-parṇa* (*Artemisia Vulgaris*)

All these roots should be dried up in shade and then blended together (by reducing them to powder). To this mixture should be added a paste made of the leaves of trees mentioned below :—

- (1) *Nimba* (Neem or Margosa tree)
- (2) *Rājavyṅkṣa* (Cassia Fistula or Indian Laburnum)
- (3) *Tulast* (Holy Basil)
- (4) *Arjaka* (Sweet Basil, *Ocimum Basilicum*)

To the above mixture add the pounded seeds of the following : —

- (1) *Ela* (Cardamom)
- (2) *Jati* (Jasmine)
- (3) *Sarapa* (Mustard)
- (4) *Tila* (Sesame)
- (5) *Kustumbara* (Coriander)
- (6) *Bakuci* (Veronia anthelmintica)
- (7) *Cakramarda* (Cassia Tora)

To this mixture add the powder of the following weeds:—

- (1) *Lavanga* (Clove)
- (2) *Padmaka* (Prunus padum)
- (3) *Lodhra* (Symplocos Racemos.)
- (4) *Śrīkhaṇḍa* (Sandal)
- (5) *Suradāru* (Fir tree)
- (6) *Agaru* (Agallochum)
- (7) *Sarala* (Long-leaved pine)

Flowers of the following plants should be thrown duly blended into the mixtures specified above :—

- (1) *Nāgakesara* (Mesua ferrea)
- (2) *Punnaga* (Calophyllum inophyllum)
- (3) *Kānta* (Aglaia Roxburghiana)
- (4) *Kunkuma* (Saffron)
- (5) *Campaka* (Michelia Champaca)

Lastly the following materials should be pounded in water or rice-vinegar (*Kañjika*) and added to the above unguent :—

- (1) *Guggulu* (Bdellium)
- (2) *Saindhava* (Rock-salt)
- (3) *Bola* (Myrrah)
- (4) *Sarjarsa* (Yellow resin)

The person of the king should be rubbed and cleaned with the application of the above unguents prepared from many aromatic and medicinal ingredients.

For removing the grease from the king's person a *Cake* (*Khali*) should be used. The composition of this cake or soap should be as follows :—

Take a quantity of very fine wheat flour. Mix it with fermented rice-gruel (*aranala*) and powdered roots of *madana* (Emetic Nut, *Randia dumetorum*) and *pisuna* (Saffron).

The king should then take his bath with the help of beautiful female attendants. The water used for the bath should contain clean waters brought from different holy places and capable of removing dirt. It should be agreeably warm and delightful to the touch. Such water duly perfumed should be kept in vessels of iron. The ladies in attendance should fill this water in shining pitchers of gold and silver and pour it on the king's person with their faces towards the king. An unguent made of the perfumed pulp of the fruits of *amalaka* (*Emblic Myrobalan*) should be applied by these ladies to the hair of the king, which should be later washed clean with agreeably warm holy waters from holy places in different parts of India. Scented turmeric (*haridra*) pulp should then be applied to the king's person by these ladies, who should wash it clean with slightly cool water and then dry it up. The king should then remove the wet garment from his body and wear a clean white garment. Thus comes to an end the elaborate process of the *royal bath*.

7. Studies in the History of Indian Cosmetics and Perfumery — The campoka oil and its Manufacture* (Between A.D. 500 and 1850)

Recently I discovered two rare MSS of two treatises on *Gandha-sastra* (Cosmetics and Perfumery) called (1) the *Gandhasāra* of Gaṅgādhara and (2) *Gandhavadā* with Marathi commentary. I have prepared two papers on those MSS, giving their critical analysis, which shows that these treatises were composed sometime between A.D. 1300 and 1600. We can definitely assign the *Gandhavadā* and its Marathi commentary to the period—A.D. 1300-1550 but the chronology of the *Gandhasāra* of Gaṅgādhara cannot be definitely assigned to any period, though its contents are analogous to those of the *Gandhavadā*. Unfortunately none of these treatises quotes any works or their authors. I have reason to believe that these treatises are based on earlier treatises on *Gandha-sastra* as I have observed in my two papers under reference.

For an accurate history of Indian Cosmetics and Perfumery we must study the references to these preparations separately and reconstruct the history of each preparation from the technical and non-technical literature. I shall illustrate this method by recording in this paper some evidence about the antiquity of the fragrant oil and other preparations in which the *Campoka*¹ flower and its perfume were made use of by our ancestors. Such a study will possess both historical and cultural importance especially with reference to the refined taste of those who manufactured these preparations for the use of cultured ladies and gentlemen of antiquity.

The use of fragrant oil is referred to in the following *Subhasitas*²

¹ *Bharatya Vidya*, Vol. VI, pp. 149-156.

1. Vide p. 7 of *Flowering Plants of Western India* by A. K. Nairne, London, 1894.—*Michelia Champaka*—A fine tree with long, oval pointed, waved leaves, shining above; veins and petals 15 to 20, flowers yellow, rosy, fragrant; carpels roundish, oval sessile, many united at the end of a swollen stalk. *Pila Champaka*, *Champakā*.

Commonly cultivated. The flowers are used by women to ornament their hair, and are strewed in temples.

"The champak odours fall

Like sweet thoughts in a dream"—*Shelley*.

"The pale yellow flowers have the sweet oppressive perfume which is celebrated in the poetry of the Hindus. From the wood of the champak the images of Buddha are carved for the temples—*Tenants's Ceylon*."

2. Vide p. 270 of *Subhāṣitaratnabhāṇḍagāra*, N. S. Press, Bombay, 1911.

with the practice of *abhyanga* (i.e., smearing the body with oil or unguent) adopted by Indian ladies :—

“अस्याः शीतोपविष्टाया जम्बूः किनोत्सो ।
 लक्ष्म्यद्वीपि बलद्वेषि नट्युत्सवेष्वम् ॥२७॥
 आचार्ये कष्टं विचयेन सम्पत्पञ्चप वक्षोःकुम्भपुरम् ।
 काशी करालभित्तैलपात्रा मन्दं समासीदति कुन्दं तां ॥ २८ ॥
 वक्षोऽथ निविष्टं निवक्ष्य विचयेनाकुञ्चय मध्यं शनैः
 हृत्वा खम्बुफलैस्तैलैरुपमन्ना संशील्य मन्दं शिरः ।
 पाणिभ्यां बलकङ्कणोपतभ्याः कारोत्तराभ्यां करो —
 त्वम्बुः परिपश्यतः लङ्कृतं दोरन्तरं प्रेषतः ॥ २९ ॥”

Here we find the use of *Campaka oil* by ladies in their *abhyanga*. Sanskrit anthologies³ contain many *anyoktis* on the *Campaka* tree and its fragrant flower, which show the popularity of the flower in the ancient Indian plant lore. This flower had lent its aroma to Indian life and literature through centuries.⁴

3. Ibid. pp. 249-250—Verses 64-71. The *Pudganeṭi* of Veṇḍatta, composed in A.D. 1644 contains 2 verses on *Campaka* (Verse 668 by Rudra and 669 by Hīnlu Kavai—Pages 190-191) of the Edition of the *Pudganeṭi* by J. B. Chaudhuri, 1944, Calcutta (*Pratyakṣeṇī Sanskrit Series*, Vol. II).

4. In the description of गन्धमादन forest described in the *Anupyaṣṭavan* of the *Mahabharata* (Critical Edition, Il O. R. Institute, 3. 155. 44) we find a reference to *Campaka* trees :—

“तथैव खड्गकाशोक्तान् वृक्षान् वकुलांस्तथा ॥ ४४ ॥”

Other trees mentioned in this description are :—

आम्र, आलता, नारिकेल, तिन्दुक, अजातक, जौर, द्राक्षिन्, शोण्य, पनस, लिङ्गुच, मोच, लज्ज, आश्वत्थ, पाराशत, वीर, नीप, शिल, कथिय, जम्बू, काश्मरी, बदरी, जल, उडुम्बर, बट, अश्वत्थ, भस्मातक, आम्रक, इगैतक, विमीतक, हृद्द, कर्षी, अशोक, केतक, वकुल, पुंनाग, लक्ष्मण, कर्षिकार, पाटल, कुटन, मन्दार, इन्द्री, पारिजात, कोविदार, देवदारु, शाल, ताल, समाल, शिवाल, शास्मली, किशुक, शिराण, तरल, कुमुद, पुराणीक, कोकनदोतरल, कर्षी, कमल, तिलक, खड्गार (and its मञ्जरी).

The description also contains names of beasts and birds of this forest such as गज, सिंह, श्याम and शिलपिन्द, कोकिल, शारिका, चकोर, राजहंस, शरस, etc. Mineral products are also mentioned : इरिताल, विह्वलक, मन्ःशिला, etc.

Regarding the antiquity of some of the plants mentioned in the *Mahabharata* reference is invited to the article on *Vedic Plants* by Dr. G. P. Majumdar in *B. C. Law Volume Part I*, pp. 643-668. Plants have proved friends of men from the remotest antiquity and Dr. Majumdar's studies of Indian plants are bound to enhance our respect for these friends when we know their historical and cultural perspective.

The *Gandhasara* of Gaṅgadhara contains the following references to *Campaka* :—

Folio 5 (B. O. R. Institute MS)—

“खंपकगंधसमानो मिलितैरेभिर्भवेद्गंधः ।
ध्रुमरसैको भागो द्वौ भागौ चैव कान्तायाः ॥ ६ ॥”

Folio 8 — “जपनरेणुकांता शुग्दनतपपादनुजन्माभिः ॥
भूलुनामीरीद्रे पक्कं तैलं तु खंपकामोदं ॥ २३ ॥
* मञ्जिष्ठया व्याघ्रनलेन शुक्रया—

सकासकुष्ठेन रसेन चूर्ण— ।
तैलेन युकोऽर्कमयूषतस्तः ।
करोति तखंपकगंधतैलं ॥ २४ ॥”

Folio 10 — “त्वक्कुष्ठरेणुनालिकाशृङ्गारसतगरवालकैस्तुल्यै ।
केसरपत्रविमिश्रेर्नरपतिगोमयं शिरस्नानं ॥
घनोत्पलदलं चोरसूक्ष्मेतानलमिश्रितं ।
खंपकामोदगंधश्च स्नानमाधानं संशयः ॥

Folio 18 — “खंपककुसुमं विपुष्टं राशौ धान्यस्य संद्रवति ।
टंकणसैधवयवजैः केतरेण च शलचूर्णयुलेन ॥”

Folio 20 — “यति पमराजल कमलजलमुल्लता तेजिनो नली गोपाः ।
खंपकपुत्रीशेखर गिरिलक्ष्मीनलदमुतकलीतगराः ॥ ३६ ॥”

Folio 22 — “खंपक कांचनोरम्यो दीर्घश्च सुकुमारकः ।
श्रृंगार्तिथः स्वर्णपुष्पाः कठिनश्च ॥ चंपकः ॥”

* The *Bṛhatsaṃhitā* of Varāhamihira contains a chapter (No. 77) on *Gandhasukti* (37 Verses)—pp. 386-389 of the Calcutta (1865) Edition. Verses 5 and 6 of this chapter read as follows :—

“त्वक्कुष्ठरेणुनालिका—
शृङ्गारसतगरवालकैस्तुल्यैः ।
केसरपत्रविमिश्रे—
नरपतिगोमयं शिरःस्नानम् ॥ ५ ॥
मञ्जिष्ठया व्याघ्रनलेन शुक्रया
त्वचा सकुष्ठेन रसेन चूर्णः ।
तैलेन युकोऽर्कमयूषतस्तः
करोति तखम्पकगन्धितैलम् ॥ ६ ॥”

Evidently *Gandhasara* has borrowed these verses; from the *Bṛhatsaṃhitā* without mention. The author of the *Gandhasara* bows to his predecessors (गंधागमज्ञान्, i.e. experts in गंधागम) in verse 3 at the beginning of his work :—

“गंधागमज्ञानं मितैर्बचोभिर्विद्वे सत्तारं शुभांगसत्तारं”

The *Gandhavada* contains the following references to *Campaka* :—

- Folio 28 —“दवणा मरु मल्ली च सेलारसृयकचतुः ।
कचुः चंपकसिका वृषकद्विदशभासिकं ॥”
(Comm. “ चांपिकलि पलें १२ ॥ ”)
“चंपकं द्विदशावर्तद्विद्विभोगवपत्रा”
(Comm. “ चंपा भाग २ ॥ ”)
- Folio 29 —“शेलाभेजसर्द उवीरकसिकाचंपापुनात्तवा ”
(Comm. “ चांपा पल १, पुनवा पल १ ”)
- Folio 30-31 —“लवंगचंपानवनश्वदीजे यन्नगालितकुलाचावासु ॥ राजपुरुषो करोविलासु”
(Comm. “ चांपा टांक ६ ”)
“मुस्तागरुचंपकमादतं ”
(Comm. “ चांपिकलि पल .॥ ”)
- Folio 35 —“चंपाकुल टांक १ ”, “ चांपिकली सेर .॥ ”
- Folio 36 —“चांपिकुल सेर ३ ”, “ चांपिकली टांक ६ ”
“चांग सेर .॥”, “ चांपा टांक ६ ”, “ चांपा टांक ३ ”
- Folio 37 —“चांपा टांक ४ ”, “ चांपा टांक ६ ”—“इति सुगंधतैल ”
- Folio 39 —“चांपिकली पल १ ”
- Folio 41 —“पलं चत्वारो चांपिलतैल काष्ठं वसुपलं ”
(Comm. “ चांपेल पल ४ ”)
- Folio 43 —“चांपा सेर .॥”, “चांपेल सेर .॥.”
- Folio 45 —“चांपेल चोखट सेर .॥”, “मेणराठी टांक १ चांपेलावु धालिजे”,
“चांपेल टांक १२ ”, “ चांपिकली सेर .॥.”
- Folio 48 —“चांपिकुल सेर १२ ”

It appears from the above references that the *Campaka* exercised a dominating influence on the manufacture of cosmetics and perfumery in several forms such as perfumed oils, powders, incense etc. Accordingly we find in the two treatises on *Gandha-Sastra* the following materials used in this manufacture :—

(1) चंपकसिका— Flower buds of *Campaka* used in certain proportions. These are called चांपिकलि in Marathi.

(2) चंपककुमुद (चंपाकुल or चांपे कुज in Marathi). These are full-blown *Campaka* flowers as contrasted with the buds.

(3) चंपकगंधितैल or चांपिल तैल (चांपेल in Marathi). This was oil of *Campaka*. It was mixed up with other ingredients for the manufacture of scented powder etc.

The two verses in the *Gandhasāra* of Gaṅgādhara viz. (1) "मञ्जिष्ठा जाम्बलेन etc." and (2) स्वकुष्ठे सुनालिका" are found in the *Brhatsamhita* of Varāhamihira in the chapter dealing with *Gandhayukti*⁵ or preparation of perfumes. The Campaka oil (चंपकमणितैल) mentioned by Varāhamihira (c. 500 A.D.) had evidently an earlier tradition. We may, therefore, safely say that the Campaka oil has a clear antiquity of 1500 years. Its popularity has continued unabated to the present day. We must trace references to the *Campaka* preparations before A.D. 500 and determine the exact period of the history of Indian perfumery in which they became current in India.

In his chapter⁶ on *Odes to Plants* (*Urksanyukti*.) based on the *Subhāṣitas* in Sanskrit anthologies Dr. G. P. Majumdar has culled out the following information about the *Campaka* plant :—

'*Campaka* — six odes' have been devoted to this plant, whose flowers are noted for their beautiful colour and fragrance.

It flourishes in a bad locality, full of sands. The poet wonders how it could be so fragrant! When planted in a village⁷ garden, the gardener does not water it when watering is needed and supplies it with plenty of water out of season. When, however, it blossoms it emits sweet fragrance, which thought to put the gardener to shame.

5. I quote here the names of some of the aromatic ingredients mentioned in the *Bṛhat-samhita* (c. A.D. 500) in the *Gandhayukti* :—

"यत्र तुष्कवा लतगरीः", यकुल, चण्डक, जाली, रक्, अतिमुकक, कुसुमुक, शतपुष्पा, कुन्दक, नल, मियङ्गु, गुडनल, गुग्गुलु, वालक, लाला, मुस्ता, मांषी, चन्दन, हरीतकी, शङ्खचन्दन, शैलक, भीमज, उशीर, सुमैला, "मृगकर्पूर", कर्पूर, ध्यामनल, सृङ्गा, श्रृगु, दमनक, तगर, चोर, म्लय, क्लरिका, शैलेय, जाली, सर्जरस, भीवासक, रोध्र, हिङ्गुल, केसर, एला, मरिच, जालीफल, शम्भूल, पूगफल, वकील, लवलीफल.

About all of these ingredients are mentioned in the *Gandhasāra* and the *Gandharvada*.

6. Vide pp. 429-428 of "Some Aspects of Indian Civilization" by G. P. Majumdar, Calcutta, 1938.

7. Vide *Sāryagudharopaddhanti* (stanzas 1002-1003). *Satuktikaryamṛta*, 58. 2. p. 267; *Sahajitaratnakara* (stanzas 1-5), pp. 245-246; *Subhāṣitavali* (stanza 801).

8. Francis Buchanan in his *Patna-Gaya Report* (Behar and Orissa Res. Society) gives an account of Bihar and Patna in A.D. 1811-12. In his chapter on "Natural Productions : Plants" he observes on pp. 432-433 :—

"The *Campaka* of the Bhagalpur list (No. 8C) is here known by the same name; nor is it common. One of the timbers in most request with the cabinet makers in Patna is called *Changpa* and they say that this name is different from that of the tree of which I am now treating; but the timber comes from Nepal and I know that there the timber of some spontaneous kinds of *Mitchelia* is in great request for the same purposes. The *Mitchelia Champaka* is everywhere in Indian exotic and is only to be found planted about villages."

Its sweet fragrance betrays it even when it flourishes in a Khadira forest ; and when it blossoms in a dry region the poet is sorry that it cannot kiss the cheeks of beautiful women there which it is always accustomed to do. Its existence there is altogether useless."

The above information, however, does not refer to the use of the *Campaka* flower in the manufacture of cosmetics and perfumery.

As a means of economic production the *Campaka* has been mentioned by the *Byhatsamhita* (chapter 29)⁹. One can infer "Gold from the flowers of the *Campaka* (*Michelia Champaka*)" says the *Byhatsamhita*¹⁰.

The *Amarakośa*¹¹ refers to the *Campaka* as *Campeya* as follows :—

"चाम्पेयचम्पको हेमपुष्पः । एतस्य कलिका गन्धकली स्वात् "

Kālasvāmin explains :—

"चम्पारैरे भवः चाम्पेयः । नम्रतृणैः श्लिभिः चम्पकः चम्पकोऽपि । आह च—
चम्पकः सकुमारश्च दूरभिः शीतलश्च सः । चाम्पेयो हेमपुष्पश्च काञ्चनः पट्टपदालिपिः (च. ५। १४२) ॥
गन्धः पलमया गन्धकली । शिबहु चम्पककलिका चेति द्वयं गन्धकली (अ. ४. २।७१) ।"

The references to the *Campaka* in the *Amarakośa* corroborate those in the *Byhatsamhita* (c. 500 A.D.). The name गन्धकली for the चम्पककलिका mentioned by Amara is also significant. We have already pointed out that the two treatises on *Gandha-Sāstra* (*Gandhasāra* and *Gandhavāda*) prescribe the use of चम्पककलिका (or चाम्पेकली) frequently in the manufacture of cosmetics and perfumery. If चम्पककलिका had assumed the name "गन्धकली" at the time of the *Amarakośa* (c. A.D. 500) we may infer that it may have been used in the preparation of perfumes even before the time of the *Amarakośa*. At any rate the *Campaka* flowers and the *Campaka* buds were aromatic ingredients of established reputation 1500 years ago, if not more.

The *Varāṅga Carita*¹² of Jaṭasimhanandi, a Jain Sanskrit poem of the

9. Dr. G. P. Majumdar has translated this chapter in his *Varāṅgaśatī*, Calcutta, 1927, pp. 130-34.

10. Ibid. p. 132. On p. 75 Dr. Majumdar refers to *Chāmpēya* as follows :—"Chāmpēya (*Michelia* sp.) indigenous of Champa-Iibagapur."

11. Vide pp. 96-97 of *Amarakośa* ed. by Dr. H. D. Sharma and Dr. N. G. Sardesai, Poona, 1941.

12. Vide p. 227 of *Varāṅga Carita* ed. by Dr. A. N. Upadhye. Bombay, 1938. I note some references to perfumed products and ingredients from this poem :—

P. 7—"कालागन्धपत्रपुष्पाश्च गन्धाः"; P. 23—"गन्धविभिन्नोदरैः"; P. 4—"पिपन्ति गन्धवत्";

7th Century A.D.. refers to the perfume of *Campaka* and the garlands of *Campaka* flowers as follows :—

“गन्धानैश्चम्पकानागन्धान् मूर्त्तां स्वगन्धैरतिशयेन तान् ।
धूपदानैः कुलकेतवः स्फुटैश्चरित्वैः स्फुरन्दीपदानैः ॥ ७८ ॥”

Page 60 — “तुङ्गकालागदचन्दनानां लवङ्गकङ्कोलककुङ्कुमानाम् ।
एलातमालोरपलचम्पकानां गन्धान्वगन्धैश्च विशेषयन्ति ॥ ६ ॥”

Page 61 — “सुगन्धितचम्पकमालतीनां पुन्नागजात्युत्पलकेतकीनाम् ।
पञ्चपारा रचिताममाला मत्स्याङ्गुला तिसृङ्गपञ्चमम् ॥ २२ ॥”

Page 219 — “मिश्रगुणशोकद्रुमकर्णिकाः पुष्पागनागानचम्पकानाम् ।
बान्यो विरेजुः सविहारयोग्या बहिःप्रदेशे भुवनोत्तमस्य ॥ ६१ ॥”

In the *Karaṇḍavyūha* (Calcutta Edition), an early Sanskrit Buddhist text, the *Campaka* flower is included under काष्ठपुष्पाणि (p. 8) of the *Jetavana*. *Campaka* trees (चम्पकवृक्षैः) are also mentioned (pp. 17-53).

Bāna in his *Kadambari* (B. S. Series—*Uttarabhāga*) refers to garlands made of *Campaka* petals (p. 253—चम्पकदलमालिका) and *Campaka* trees (p. 256).

The *Mānasollāsa* of Someśvara (c. A. D. 1130) refers to the *Campaka* oil in the following verse (p. 81 of Vol. II of मानसोल्लास G. O. S., Baroda, 1939) :—

“पुष्पागच्छम्पकोदामगन्धसंवाहितैः तिलैः ।
यन्मसृष्टिहृतिस्सैलं गृहीत्वाऽभ्यङ्गमाचरेत् ॥”

This verse is important as it tells us how the *Campaka* oil was prepared. Seeds of *Tila* (sesame) were perfumed with *Campaka* flowers and then pressed. The oil so produced was used for *abhyāṅga*.

Buchanan in his *Patna-Gaya Report* (A.D. 1811-12), Vol. II, pp. 633-34,

P. 49—“आर्द्रचन्दनकल्कानि”; P. 60—“तृणानि .. सौगन्धिकगन्धवन्ति”; P. 67—“गोशीर्षहृत्सस्यु
श्वानः”; P. 70—“गन्धान्धुगन्धीकुसुमस्रजश्च”; P. 92—“पुष्पाणि ताम्बूलचिह्नेपनावि”; P. 96—
“तामूलधूपाङ्गनमेषजेषु”; P. 97—“धूपाङ्गनमन्त्रपवित्रभूतैः”; P. 101—“कर्पूरकवाहिताभ्यः”;
P. 112—“चन्दनवारिभिः”; P. 130—“चन्दनोदकः”; P. 131—“गोशीर्षचन्दनः”; P. 154—
“तामूलपक्षोत्तमधूपणानि”; P. 219—“कम्बुकाः”; “कन्धुकगन्धोऽकटमलिकानाम्” “लवङ्गकङ्कोल-
कालिकाः”; “तामूलवल्गुः”; P. 223—“गोशीर्ष”, “धूप”, “वाल्चूर्ण”, P. 224—
“चन्दनोगन्धः”; P. 225—“गन्धोदक”, “तुङ्गक”, P. 226—“गन्धपङ्क”, P. 229—“चूर्णवात”,
“लाघातः”; P. 274—“तुङ्गकालागद”; P. 282—“तामूलधूपाङ्गनगन्ध”

describes the preparation of *Chambeli* oil from *Chambeli* flower (*Jasminum Grandiflorum* w.) as follows :—

"At the beginning of the flowering season they take 82 seers (about 169 lbs.) of the seed of *sesamum* (Til) and every fair day during the season add to one half of it as many flowers as they can collect... The seed is then squeezed in a common oil mill etc."

It will be seen from the description of the preparation of the *Chambeli* oil in A.D. 1811-12 that the process of preparing it is identical with that for the *Campaka* oil current in A.D. 1130.

The *Manasollasa* in its section on flower-garlands to be worn by the king mentions the *Campaka*¹³ flowers used in the preparation of garlands as follows :—

P. 9. — (मानोल्लास)—

" चम्पकं मलिकापुष्पं चम्पकाः पुष्पलैः सह ॥ ४२ ॥

चम्पकं नुरभीपुष्पं चम्पकं वाटलान्वितम् । "

For blending the perfumes of the *Campaka* flowers they were combined with other flowers for preparing the garlands.

The *Rājavyavaharakosa* of Raghunātha Paṇḍita prepared by the order of Shivaji the Great between A.D. 1650 and 1674 refers to the *Campaka* oil in the *मोग्यवर्ग* as follows :—

" मल्लितैलं मोरैलं चमेलीप्रतिलेखम् ।

तथा चम्पकलैलं चापिलमिति धीर्हितम् ॥ १५ ॥ "

The *Susruta Samhita*¹⁴ (Sūtrasthāna, chap. 46, पुष्पवर्ग) gives the properties of the *Campaka* as follows :—

" चम्पकं रक्तविलसन्नं पीतोष्णं कृत्वाशनम् "

In the Appendix to *Aṣṭāṅgasamgraha* (Sūtrasthāna) edited by Pt. R. D. Kinjavadekar (Poona, 1940), some texts bearing on स्वयम्भुत are

13. In the Word-Index to the *Arthashastra* of Kautilya there is no reference to चम्पक but in the Word-Index to Patanjali's *Yogakurṇus Mahabhāṣya* (c. 150 B.C.) "चम्पकपुट" is mentioned as follows :—

11. 1. 1 (p. 364 of Kielhorn's Edition, Bombay, 1880)

"यथा तर्हि मलिकापुटः चम्पकपुटः इति निम्नेर्णानु श्रुतिं सुमनःसु अन्वयादिरोपणं भवति अयं मलिकापुटः अयं चम्पकपुटः इति " These are references to चम्पक and मलिका flowers.

14. Videp. 456 of Text with Marathi translation by Krishna Shastri Phadke Bombay, 1921 (Vol. I) — *Sūtrasthāna*.

recorded. In these texts there are references to the *Campaka* flowers :—

P. 181—(पुष्पादिधारणम्)

“ पाटलं च वृक्षपुष्पं वकुलं चम्पकं तथा ।

श्रीखंडं चैव गोलालं कर्णार्थं सह धारयेत् ॥ ३४ ॥”

“ गोलालं चम्पकं पुष्पं वातश्लेष्महरणम् ”

“ चम्पकं वातशमनं चतुर्थं विशदं शुभम् ”

“ प्राकृतसु पाटलं धार्यं चम्पकं शशि स्मृतम् ”

P. 191—(गृहादिनिर्माणविधिः). The *Campaka* tree is to be planted to the South-east quarter of the house :—

“ आग्नेय्यां दिशि गृहोऽहि चम्पकं वै”

Itakore Saheb of Gondal¹⁵ states Indian medical works recommend the use of twigs of several plants for cleansing the teeth. Wonderful properties are ascribed to these twigs. A tooth-brush made of *Campaka* twig (*Michelia Champaka*) improves the organs of speech and hearing.

The foregoing evidence about the antiquity of the *Campaka* tree and its flower as used in the preparation of the *Campaka* oil famous in Indian cosmetics and perfumery is by no means complete. I record below in a tabular form the chronology of the evidence as gathered by me from Sanskrit and other sources, technical and non-technical :—

Chronology	Reference
c. 150 B.C.	— Patañjali refers to चम्पक and मल्लिका flowers (II, 1. 1, महाभाष्य) <i>Mahabharata</i> (Āraṇyaka parvan) mentions चम्पक trees growing in the गन्धमादन forest. <i>Suśruta Samhitā</i> mentions the properties of the <i>Campaka</i> flower. <i>Karandavyūha</i> mentions <i>Campaka</i> trees and their flowers.
c. A.D. 500	— Varāhamihira in his <i>Brhatsamhitā</i> refers to ‘चम्पकगन्धितैल’ and ‘चम्पकामोदगन्ध’
c. 500-800	— <i>Amarakośa</i> refers to चम्पक and its bud called ‘गन्धफली’
c. A.D. 630	— Bāṇa in his <i>Kadambari</i> refers to <i>Campaka</i> trees and ‘चम्पकदलमल्लिका’

15. Vide p. 59 of *Arya Medical Science*, London, 1896.

Chronology	Reference
7th Century A.D.	— <i>Varaṅga Carita</i> of Jaṭasimhanandi contains numerous references to the <i>Campaka</i> trees, flowers and perfumes.
c. A.D. 1130	— <i>Manasollasa</i> of Somēśvara prescribes the use of <i>Campaka</i> oil for <i>abhyāṅga</i> and also states the mode of its preparation.
c. 1290 A.D.	— <i>Jānēśvartī</i> , Chap. XVIII, 853—"ना ना चापा चापोलीपुत्रिला" (चाप—चंपक and चापोली—चंपककलिका)
c. 1300-1600 A.D.	— <i>Gandhasāra</i> of Gaṅgadhara and <i>Gandhavāda</i> with Marathi commentary describe in detail the method of preparing चम्पकतेल and using it for several articles of perfumery. चम्पक कलिका and चम्पक flower were made use of in the manufacture of oils, powders etc.
A.D. 1650-1674	— <i>Rājavyavahāraśa</i> of Raghunātha Paṇḍita mentions चंपकतेल (or चापेल) along with other fragrant oils such as मोरोल, चम्बेलीतेल etc.
A.D. 1626-1678	—Venabai in her <i>Śīṭaśvayāra</i> (8. 7):—"फुलेले चापेले पेडनी" (चापेल = चापेल)
A.D. 1811-12	—Francis Buchanan in his <i>Patna-Gaya Report</i> and <i>Bhagalpur Report</i> describes <i>Champa</i> or <i>Michelia Champaka</i> in his list of Plants. He also describes the process of preparing <i>Chambeli</i> oil, which is exactly the same as mentioned in the <i>Manasollasa</i> (A.D. 1130) for the preparation of चम्पक तेल —चापेल तेल is referred to in women's songs :— "वाटिली हलद वांगली । चापेल तेलें मोरिली" (जीगीत १४—जीगीतमाला by G. M. Kurlekar, Bombay, 1882.)

The *Upaniṣadvākyamahākāśa* (by G. S. Sadhale, Bombay, 1940) *Parvārdha*, p. 180 quotes a sentence from *गायत्रीसूक्तोपनिषद्* containing a reference to *Campaka* :—

"चम्पकतली कुंडुपिपिले-द्रवोत्त.....वनसारसंनिभं गायत्र्याः प्रत्यक्षरमनुसृत्य etc."

As the date of this *Upaniṣad* has not been fixed up this reference to *Campaka* renders no chronological help in our present study.

Brewer in his *Dictionary of Phrase and Fable* records the following note on *Campaka* :—

P. 236—"Champak—An Indian tree (*Michelia Champaca*). The wood is sacred to Buddha and the strongly scented golden flowers are worn in the black hair of Indian women."

"The *Champak* odours fail"

—Shelley : *Lines to Indian Air*.

I hope the foregoing study of the antiquity of the *Champak* tree referred to in the *Mahabharata* and subsequent literature will be helpful to all students of ancient Indian plant lore and allied subjects. The antiquity of the *Campaka* tree prior to c. 500 B.C. needs to be established. The Word-Index to the *Atharvaveda* (by Vishvesvarananda and Nityananda, 1908) does not mention *Campaka*. In Dr. Majumdar's list of Vedic Plants in *B. C. Law Volume*, Part I, the *Campaka* is not mentioned.

The *Sanskrit-Wörterbuch* by Böhtlingk and Roth (St. Petersburg, 1888) records references to *Campaka* flower and tree from the *Amarakośa*, *Trakopadesa*, Hemacandra's *Abhidhāna*—*Cintāmaṇi*, *Mahabhārata*, *Rāmāyaṇa* (1, 17, 35 ; 3, 17, 11), *Suśruta*, *Bhāgavata*, *Lalitavistara*, *Caurapañcatika*, *Bṛhatsamhita*, *Rajataranginī*, and *Hitopadeśa*.

The *Saddakalpadruma* records the following verses about चम्पक चतुर्दशी when God Śiva is to be worshipped with *Campaka* flowers :—

उक्तानामश्वत्थम् (11th Pātala)—

"चतुर्दश्यां च शुक्रायां ज्येष्ठे मासि महेश्वरम् ।

चम्पकैः पूजयेद्भक्त्या शिक्लोकमवाप्नुयात् ॥"

8. Verses pertaining to Gandhayukti in the *Agnipurāṇa*
(9th Century A.D.) and their relation to the topics
dealt with in Gaṅgādhara's *Gandhasāra*,
Between A. D. 1300 and 1600.*

Recently I discovered two treatises¹ on *Gandhasāstra* (cosmetics and perfumery) viz. (1) the *Gandhasāra* of Gaṅgādhara and (2) *Gandhavadā* with Marathi commentary. According to my evidence these treatises appear to have been composed between c. A.D. 1200 and 1600. Unfortunately the authors of both treatises, though they have drawn their materials from earlier texts, do not mention the works from which they have drawn these materials. In a paper² on the antiquity of the *Campaka* oil recently published by me I have proved that Gaṅgādhara has borrowed two verses from the *Gandhayukti* chapter of the *Bṛhatsamhita* of Varāhamihira (c. A.D. 500) pertaining to the manufacture of the *Campaka* oil (चम्पकपित्तैल). To enable us to understand fully the historical back-ground of the two treatises on *Gandhasāstra* referred to above we must record and study the extracts in earlier texts pertaining to the *Gandhasāstra*. I record, therefore, in this paper some verses from the *Agnipurāṇa*³ pertaining to *Gandhayukti* or manufacture of cosmetics and perfumery. These verses are as follows :—

Agnipurāṇa (Venkatesvara Steam Press, Bombay), chapter 224
(verses 19-42) dealing with राजधर्म (सीरसादिकामशास्त्र) :—

* *Adyar Library Bulletin*, Vol. IX, Part IV, pp. 143—151.

1. I have published the following papers on these treatises :—

(i) *A Critical Analysis of a Rare MS of Gandhasāra, etc.* (*New Indian Antiquary*, Vol. VII pp. 185-193).

(ii) *The Gandhasāra of Gaṅgādhara, an unknown Treatise on Gandhasāstra and its Critical Analysis*—(*Journal of the University of Bombay*, Vol. XIV, Part 2, pp. 44-52, 1945).

2. *Bharatiya Vistāra*, Bombay, Vol. VI (July-August 1945), pp. 149-145.

3. Dr. R. C. Hazra in his *Purāṇic Records* (Dacca, 1940) has discussed the date of the present *Agnipurāṇa*. I note some points from this discussion (*Vide* pp. 134 ff.) :—

(i) The present *Agnipurāṇa* (= AP) is a sort of cyclopaedia in miniature. Its contents are divided into पराविद्या and अपराविद्या. The अपराविद्या division contains chapters on four *Yogas*, six *Yedāṅgas*, (शिक्षा, कल्प, आकाश, निवक्त, छंदस् and ज्योतिष), छभिधान, मीमांसा, धर्मशास्त्र, पुराण, न्याय, वैदक, गान्धर्व, घनुवेद, and अर्थशास्त्र.

“ घृतं सुगन्धि भवति दुग्धैः क्षितैस्तथा यवैः ।
 भोज्यस्य कल्पनैव स्याद्गन्धयुक्तिः प्रदर्शयते ॥ १९ ॥
 शौचमाचमनं राम तथैव च विरेचनम् ।
 भावनं चैव पाकश्च बोधनं धूपनं तथा ॥ २० ॥
 वासनं चैव निर्दिष्टं कर्माण्यकमिदं स्मृतम्^१ ।
 कपिर्यविल्वजंश्वाप्रकरवीरकालवैः ॥ २१ ॥
 कृन्वोदकं^२ तु यद्द्रव्यं शोधितं शोधनं तु तत् ।
 तेषामभावे शौचं तु मृगदर्पणभसा भवेत् ॥ २२ ॥
 न खं कुङ्कुमं धनं मांसो स्पृक्षशीलेयजं जलम् ।
 तथैव कुङ्कुमं लाक्षा चन्दनागुरुनीरदम् ॥ २३ ॥
 सरलं देवकाष्टं च कर्पूरं कान्तया सह ।
 बालः कुन्दुस्कञ्चैव गुग्गुलुः श्रीनिवासकः ॥ २४ ॥
 सह सर्जरसेनैवं धूपद्रव्यैर्विशतिः ।
 धूपद्रव्यगणादस्मादेकविंशत्यथेच्छया ॥ २५ ॥
 द्वे द्वे द्रव्ये समादाय सर्जभागैर्नियोजयेत् ।
 नखापिण्याकमलयैः संयोज्य मधुना तथा ॥ २६ ॥
 धूपयोगा^३ भवन्तीह यथावत्तथेच्छया कृताः ।
 खर्वं नाडीं फलं तैलं कुङ्कुमं ग्रन्थिपर्वकम् ॥ २७ ॥

(ii) According to Dr. Hazra "the date of compilation of the present AP is the same as that of the summaries and incorporations"—Dr. Hazra holds the view that "the present AP was compiled sometime during the ninth Century" (i.e. between A. D. 800 and 900).

4. It is clear from these lines that AP gives 8 processes (कर्माष्ट) in the manufacture of cosmetics viz. (1) शौच, (2) आचमन, (3) विरेचन, (4) भावन, (5) पाक, (6) बोधन, (7) धूपन, (8) वासन. Gaṅgadhara in the परिभाषा section of गन्धसार records, however, six processes: (1) भावन, (2) पाचन, (3) बोध, (4) वेध, (5) धूपन and (6) वासन ("भावनं, पाचनं बोधो वेधो धूपनवासने । एवं पञ्च कर्माणि द्रव्येषूक्तानि कोविदैः ॥"). Four processes are common to AP and गन्धसार.

5. The Gaṇḍhasthā records गन्धजल of 5 sorts (पञ्चविध).

6. Cf. गन्धसार contains 64 verses on the preparation of धूप (folios 12-15 of B.O.R.I. MS of गन्धसार in the Raṅgiri collection).

ऐतेषं तगरं कान्तां चोत्तं कर्त्तव्यं च ।
 मणीं शुभं व कुण्डं च खानद्वयानि निर्दिशेत् ॥ २८ ॥
 एतेष्वग्निं समादाय द्रव्यमयमेष्वपा ।
 सुगन्धं पुनः खानं कथं चन्दनं ॥ २९ ॥
 त्वद्भुजानलदेहस्यैवैतलकाङ्गसमाधुतेः ।
 खानद्वयसगन्धिस्यात्सतेलं कुङ्कुमायते ॥ ३० ॥
 आतीपुष्पद्रुगन्धिस्यात्तगरादेन योचितम् ।
 सङ्ग्रामार्कं स्याद्दुलैस्तुल्यगन्धिमनोहरम् ॥ ३१ ॥
 मञ्जिष्ठा तगरं चोत्तं त्वत्वं व्याघ्रनलं नलम् ।
 गन्धवत्त्वं च किन्धस्य गन्धैर्लभं भवेच्छुभम् ॥ ३२ ॥
 तैलं त्रिपौचितं रामं तिलैः पुष्पाधिरासितैः ।
 वासनासुगन्धसहस्रं गन्धेन तु भवेद् भुवम् ॥ ३३ ॥
 एतास्तत्त्वकुञ्जोत्तमातीकलनिष्ठाकराः ।
 आतीपधिकरा साहं स्वतन्त्रा मुञ्चवात्सकाः ॥ ३४ ॥

7. Cf. गन्धसार has 24 verses on अलङ्कार (folio 100 of B. O. R. I. MS). They deal with scents to be used in baths. Scents for the King's bath are mentioned in the following verse :—

“ त्वद्कुङ्कुमोत्तमातिष्ठाभृक्कारतगरवासलकैस्तुल्यैः ।
 ऐसरपत्रविभिन्नैर्नैपसिषोर्गं शिरस्त्राजम् ॥ ”

8. Cf. गन्धसार contains 34 verses on the preparation of scented oils (गन्धतैलम्)—(folio 7-8 of B.O.R.I. MS). The process of extracting these scented oils as given in the *Agnipurana* is described in detail in the गन्धसार as follows (folio 7) :—

“ तिलासंशोभितानां दौ आग्निः प्रज्ञात्य कुट्टयेत् ।
 तिलुपीकस्य धमेतान् शोषयेत्विमलांस्ततः ॥ ३ ॥
 वास्येत्तपपापात्रं संशुद्धं वित्ताननम् ।
 धूपयन्ता तस्य तलमाश्लोषं कुसुमैः शुभैः ॥ ४ ॥
 तानि प्रच्छादयेद्वेदङ्गुलोत्सेवितैः समम् ।
 पुनः प्रसूतेराश्लोषं पुनः प्रच्छादयेद्वितैः ॥ ५ ॥
 एवं प्रसूतांशितैरितैः पात्रं प्रसूयेत् ।
 पिपात्र पात्रवदनं वास्येत्तदहर्निशम् ॥ ६ ॥
 ततः प्रयाते संशोभ्य तिलागुष्पाणि संत्यजेत् ।
 पुनः पुनः यथा पूर्वं तिलांस्तानेव वासयेत् ॥ ७ ॥
 वास्येत्तैः प्रमायन्ते ऋद्धका गंधवेदनात् ।
 तावत्पुनैर्वाप्तवित्वा यन्त्रे निम्नीयेत्ततः ॥ ८ ॥

कर्पूरं कुङ्कुमं कान्ता मृगदपे हरेणुक्म् ।
 कंकोलैलालवङ्गं च जातीकोशकमेव च ॥ ३५ ॥
 त्वक्पत्रं त्रुटिमुस्तौ च लतां कस्तूरिकां तथा ।
 षष्टकानि लवङ्गस्य फलपत्रे च जातितः ॥ ३६ ॥
 कटुकं च फलं राम कार्ष्णिकायुपकल्पयेत् ।
 तन्वृणैः खदिरं सारं दद्यात्तुये तु वासितम् ॥ ३७ ॥
 सहकाररसेनास्मात्कर्त्तव्या गुटिकाः^९ शुभाः ।
 मुखन्यस्ताः सुगन्धास्ता मुखरोगविनाशनाः ॥ ३८ ॥
 पूगं प्रक्षालितं सम्पक्पञ्चपल्लववारिणा ।
 शक्या तु गुटिकाद्वयैर्वसितं मुखवासकम् ॥ ३९ ॥
 कटुकं दन्तकाष्ठं^{१०} च गोमूत्रे वासितं त्र्यहम् ।
 कृतं च पूगवद्राम मुखरोगनिधकारकम् ॥ ४० ॥
 त्वक्पथ्ययोः समावंशौ शशिभागादसंयतौ ।
 नागवल्लीशमो भाति मुखवासो^{११} मनोहरः ॥ ४१ ॥
 एवं कुर्यात्सदा स्त्रीणां रक्षणं पृथिवीपतिः ।
 न चाष्टां विश्वसेजातु पुत्रमातुर्विशेषतः ।
 न स्वपेतस्त्रीयहेरात्रौ विश्वासः कृत्रिमो भवेत् ॥ ४२ ॥

तादिमहापुराणे आग्नेये स्त्रीरक्षादिकामशस्त्रं नाम चतुर्विंशत्यधिकद्विशततमोऽध्यायः ॥ २२४ ॥^{१२}

It will be seen from the footnotes to the above extract recorded by me that the topics in this extract have their parallels in the *Gandhasāra* of Gaṅgādhara. If the present *Agnipurāṇa* containing summaries and incorporations (including the गन्धयुक्ति verses) was compiled in the 9th century A. D. as observed by Dr. Hazra, we have to point out that the

9. Cf. गन्धसार—

“पूगयुक्ताः पारिजाता गुटिकाः खदिरैर्बुताः ।”

10. Cf. गन्धसार—

‘वक्त्ररोगनिधकारित्वा शुभ्यादायुपयोजनात् ।

दन्तकाष्ठं वक्त्रवासं सर्वोद्दमयोजये (त्) ॥

गोमूत्रे सातपाच्येण दन्तकाष्ठानि निक्षिपेत् ।

सप्तहमय कुष्ठैस्तावक्पञ्चाञ्जनवलिजैः ॥”

11. Cf. गन्धसार contains 24 verses on the preparation of मुखवास (folios 5 and 7 of B.O.R.I. MS of गन्धसार).

गन्धपुक्ति described in the above extract may be taken to represent briefly the Indian knowledge of the art and manufacture of cosmetics and perfumery as current in the 9th century. In fact this extract stands midway between the गन्धपुक्ति chapter of Varahamihira's *Brhatsamhita* (c.A.D.500) on the one hand and the treatise of Gaṅgādharma viz., the *Gandhasara* (between 1200 and 1600) on the other. Varahamihira does not record the process of preparing गन्धतैल as described in brief in the *Agnipurāṇa* in verse 33 of the extract. This process has remained unaltered at least from the 9th century onwards as will be seen from the following table :—

A. D.	SOURCE	REFERENCE
Between 800—900	<i>Agnipurāṇa</i>	—“ गन्धपत्रं च विन्यस्य गन्धतैलं भवेत् शुभम् । तैलं निपीदितं राम, तिलैः पुष्पाधिवासितैः ॥ ”
c. 1130	<i>Manasollasa</i> of Somesvara	—“ पुष्पागचपकोद्गम— गंधसंवासासतैः तिलैः । यन्त्रसम्पीडितैस्तैलं शरीरान्धपङ्कमाचरेत् ॥ ”
Between 1300 and 1600	<i>Gandhasara</i> of Gaṅgādharma	—“ दावत्तिलाः प्रजायन्ते कटुका गंधवेदनार् । तावत्पुष्पैर्वासयित्वा यन्त्रे निष्पीडयेत्ततः ॥ ”
1811—1812	Buchanan's <i>Patna-Gaya</i> Report	—“At the beginning of the flowering season they take 82 seers (about 169 lbs.) of the seed of <i>Sesamum</i> (<i>Til</i>) and every fair day during the season add to one half of it as many flowers as they can collect ... The seed is then squeezed in a common oil-mill etc.”

In the *Cikitsāsthāna* of the *Carakasmṛhita* we find several medical oils prescribed such as मधुसूतयादितैल, कुकुमाकतैल, अमृतापतैल, मन्दापचकतैल, बुध्वापचकतैल, मधुतैल, शलातैल, विषहृत्तैल etc. against वातरक्त (chapter 29). Some of these oil-preparations were made of varied materials, among which we

notice some aromatic ingredients like चन्दन, उशीर, केशर, तगर, कुष्ठ, मञ्जिष्ठा, हल्दी, कुङ्कुम, पत्रेला, अगुह, नख, वालक etc. It is possible to presume that the preparation of scented oils (गन्धतैल) developed side by side with the preparation of medical oils. In fact some of the aromatic ingredients used in the *Gandhasāstra* had definite medical value. Though the *Gandhasāstra* may have originated from the early back-ground of the Ayurvedic manufacture of medicines it appears to have developed as a specialized art¹² in course of time and consequently the *Kamasāstra* of Vātsyāyana mentions गन्धयुक्ति or the art of preparing cosmetics and perfumes as one of the 64 arts in which the gentleman of the period was expected to be proficient. These arts are mentioned as the constituents of the *Kamasūtra* (कामसूत्रस्य द्वाविंशतिः) by Vātsyāyana. With the development of Indian culture in a full-fledged manner specialization in different arts and professions must have come into being and the *Gandhasāstra*, which catered to the gay tendencies of ladies and gentlemen of antiquity, developed as both a science and an art, as it was useful both in secular and religious spheres of their activities. It was a science with a definite objective, so beautifully expressed by Gaṅgādhara at the beginning of his *Gandhavāra* in the following verse :—

“ देवानां शुभगंधधूपसहितस्यार्चाविधेर्यकं
नृणां पुष्टिकरं, त्रिवर्गफलदं, स्वस्थाप्यलक्ष्मीहरम् ।
राशां तोषकरं, विदग्धवनिताचित्तप्रमोदप्रदं
शास्त्रं सच्छुभगन्धशासनमतो दिदमात्रमयोप्यते ॥”

Verily, the Indian *Gandhasāstra* could not but prosper as it pleased Gods, contributed to the comforts of men, and delighted the hearts of kings and accomplished ladies, besides making its devotees prosperous—thus fulfilling the three ends of human life (*Dharma*, *Artha* and *Kāma*). The early history of such a *Gandhasāstra* needs to be reconstructed systematically in the light of the two treatises recently discovered by me viz. the *Gandhasāra* of Gaṅgādhara and the *Gandhavāda* with a Marathi commentary.

12. Vide *Kamasūtra* ed. by Pandit Kedarnāth, N. S. Press, Bombay, 1900 (शिवारण्यमधिकरणम्—Chapter 3, p. 32)—The commentator यशोधर explains गन्धयुक्ति as follows :—

“ गन्धयुक्तिरिति । स्वशास्त्रविहितप्रपञ्चा प्रतीतप्रयोजना” ।

9. The Gandhayukti Section of the Viṣṇudharmottara and its Relation to other Texts on the Gandhaśāstra*

In my *Studies in the History of Indian Cosmetics and Perfumery (Gandhaśāstra)* so far published, I have analysed and made use of the following Sanskrit texts on the *Gandhaśāstra* :—

- (1) Two special treatises on the *Gandhaśāstra* (composed between c.A.D. 1300 and 1600) discovered by me, viz. (i) *Gandhasara* of Gaṅgādhara and (ii) *Gandhavāda* with Marathi Commentary.¹
- (2) The chapter called "*Gandhadhikāra*" of a work on erotics called the *Nāgarasarvasva* by a Buddhist author Padmaśrī (About A.D. 1000).²
- (3) The *Gandhayukti* section of the *Agnipurāṇa* (Between A.D. 800 and 900).³
- (4) The *Gandhayukti* section of the *Bṛhat Saṃhita* of Varāhamihira (c. 500 A.D.).⁴

The above sources prove beyond challenge the history of the *Gandhaśāstra* literature for more than 1500 years, though unfortunately the texts on this subject which have come down to us are few and fragmentary. It should, therefore, be our endeavour to link up every new source with the texts referred to above to enable us to have a connected view of the history of the *Gandhaśāstra* from the remotest antiquity to the present day.

I propose here to deal with the *Gandhayukti* section of the *Viṣṇudharmottara Purāṇa* (Khaṇḍa II, chap. 64, pp. 220—221 of Venkatesvar Press Edition, Bombay). This section reads as follows :—

“गुणवशात् ॥

A 20 शोषं वासवं चैव तथैव च विशेषम् ।

वायवा चैव वायव्य शोषं यत्नं तथ ॥ १ ॥

* *Journal of G. Jha Research Institute*, Vol. III, parts 3 and 4, pp. 279—294.

1. *Vide Journal of the Bombay University*, Sept. 1945, pp. 44-52; *New Indian Antiquary*, Feb-March, 1945, pp. 185-193.

2. *Ibid.*, pp. 51-52.

3. *Adyar Library Bulletin* Vol. IX (Part 4) 1945, pp. 143-151.

4. *Bhadratya Vidyā*, July-August, 1945, pp. 149-156.

A 21 वासनं चैव निर्दिष्टं कर्माष्टकमिदं शुभम् ।

कपिरथिल्वज्जम्भाम्नीजपूरकपल्लवैः ॥ २ ॥

A 22 कृतोदकं तु यद्द्रव्यं शोषितं शीचि ' तु तत् ।

तेषामभावे शीचं तु मृतदर्शाम्भसा भवेत् ॥ ३ ॥

तदभावे तु कर्तव्यं तदा मुस्ताम्भसा द्विज ।

शुष्कं शुष्कं पुनर्द्रव्यं पञ्चपल्लववारिणा ॥ ४ ॥

प्रक्षालितं चाप्यसह-द्रमितं तत्प्रकीर्तितम् ।

पञ्चपल्लवतोयेन क्वाथयित्वा पुनः पुनः ॥ ५ ॥

द्रव्यं संशोषितं कृत्वा चूर्णं तस्य तु कारयेत् ।

हरीतकी ततः पिष्ट्वा पञ्चपल्लववारिणा ॥ ६ ॥

तेन परवाकपाथेण तच्चूर्णं भावयेत्सकृत् ।

शोषितं शोषयेदतद्विरेकं तत्प्रकीर्तितम् ॥ ७ ॥

ततस्तु गन्धद्रव्येण यथेष्टं कुङ्कुमादिना ।

भावयेत्तेन तद् द्रव्यं भावना सा प्रकीर्तिता ॥ ८ ॥

तेनैव भावयेद् द्रव्यं पञ्चपल्लववारिणा ।

आश्वत्थेनैव तेनाथ द्रव्यं राम तथास्तु तत् ॥ ९ ॥

5. Compare the Six processes of manufacturing cosmetics mentioned in the *गीताप्रकरण* of the गन्धसार of गङ्गाधर in the following verse :—

“भावनं पाचनं शोधो वेधो धूपनवासने ।

एवं षडङ्ग कर्माणि द्रव्येषूक्तानि कोविदैः ॥ ६ ॥”

Here I shall compare the verses on गन्धयुक्ति in the *विष्णुधर्मोत्तर* with those found in the *गीताप्रकरण* (Venkateswar Press, Bombay). Chapter 224 (verses 19-42.) [A 20 = *Agnipurāṇa* Chap 224 verse 20 and so on] :—

A 20 — शीचमाचमनं राम तथैव च विरेचनम् ।

भावनं चैव पाकश्च शोधनं धूपनं तथा । २० ॥

A 21 — वासनं चैव निर्दिष्टं कर्माष्टकमिदं स्मृतम् ।

कपिरथिल्वज्जम्भाम्नीजपूरकपल्लवैः ॥ २१ ॥

A 22 — कृतोदकं तु यद् द्रव्यं शोषितं शोषनं तु तत् ।

तेषामभावे शीचं तु मृगदर्शाम्भसा भवेत् ॥ २२ ॥

यदा विहितमसौ तु मूलमये मासमद्वये ।
 विपचेतु किंमनावावर्तयुः पुनः पुनः ॥ १२ ॥ *
 भाषेय स्वापयेतावत्तत्रैवानुगतो यः ।
 पलपाकविद्यामं ते पञ्चमं परिशीलितम् ॥ ११ ॥
 ततश्च भाषनादस्य कल्पविष्टं नियोजयेत् ।
 कल्पविष्टे तथा द्रव्यं चोच्यं परिशीलितम् ॥ १२ ॥
 ततश्च पूजयेत् द्रव्यं पूजयेत् तु पदपदा ।
 ततश्च मुकुटविद्यां चन्दनामरुचिस्ततः ॥ १३ ॥
 कर्पूरमृगद्वयोऽपि ततश्चैतं तु पूजयेत् ।
 इत्येतादृशमं नाम कर्म तद्विहितं मया ॥ १४ ॥
 ततश्च पुष्पिकां कृत्वा यथाकामस्तद्विस्तः ।
 पुष्पैर्यकुलमातीनां तवाग्नेयां सुगन्धिभिः ॥ १५ ॥
 क्षायास्तु होव्यमाद्यस्य वासना किपते तु या ।
 क्षासना सा विनिर्दिष्टा कर्मैतच्चाद्यं शुभम् ॥ १६ ॥

6. The *Gandharva* mentions different varieties of पाक such as—(1) पुटपाक, (2) गर्तपाक, (3) वेणुपाक, (4) दोलापाक, (5) लवणपाक, (6) देहपूपाक, (7) कालपाक (See verses 8-17 of परिभाषाप्रकरण of गन्धर्व—B.O.R. Institute MS in the Rajaji Collection). The पुटपाक and गर्तपाक are described in the गन्धर्व as follows :—

“पंचपत्रपुटपाकं मृत्तिलपत्रं चांगुलीकृतम् ॥ ८ ॥
 पञ्चैतन्वारीकृते बह्वै पुटपाकोऽप्युच्यते ।
 गर्तं पार्श्वं गंधर्भं कृत्वाऽऽस्यं मृदापटम् ॥ ९ ॥
 प्रधातव्यो रिनस्तदुपरि ततपाको भवेदयम् ॥”

7. The aromatic ingredients (गन्धर्वद्रव्यं) mentioned by Varahamihira in the गन्धर्वविद्या section of the *Bṛhat-saṁhitā* (c. A. D. 300) are :—“पत्रं तुलस्यं बालतमरेः”, यकुल, चण्डक, आली, लवण, कालिद्रुपक, कुण्डलद्रुपक, अमृता, कुन्दरुपक, नल, शिपय, गुडनल, गुग्गुलु, वालक, क्षाया, मृता, मोली, चण्डक, हयिनी, राक्षसद्रव्य, रौलक, भीकज, उशीर, वृक्षमला, “मृगकर्पूर”, कर्पूर, व्यामनल, वृक्षा, अगुरु, दहनक, लगर, चोर, मलय, कस्तूरिका, रौलेय, कर्जूरक, भीवातक, रोम, विष्णुल, वेष्टर, राक्षा, मरिच, जातीफल, हाम्बूक, पूगफल, बकुल, लवलीफल,— I note here articles in the *Hobson-Jobson* (1903) on a few of the above ingredients :—Pages 152-153—CAMPHOR—uses recorded are :— c. A.D. 340 (*Cajupura*, c. A.D. 940—*Camphor*). A.D. 1298 (*Camphor*), etc.

Pages 913-914—TAMBUKOL—uses recorded are from A.D. 1298 (*Tambul*) onwards.

Pages 399—MUSK (कस्तूरी)—uses :— c. A.D. 390 (*muscus*) mentioned by St. Jerome (c. A.D. 345 (*Musk animal*)) etc.

Pages 789-790—SANDAL (चन्दन)—uses :—Sandalwood (c. A.D. 545) onwards.

Page 499—LAC (लाक्षा)—uses :—Lac-dye (c. A.D. 80-90) mentioned in *Periplus*.

- कर्माष्टकमिव कृत्वा वचां पिण्डनिभां तथा ।
 मुस्तं शैलेयकं वापि सेव्यं वा द्विजसत्तम ॥ १७ ॥
 शोभयेद्गान्धिको विद्याशयावत्कर्म सेव्यति ।
 निर्यासानां च पुण्याणां कर्माष्टकमिव शुभम् ॥ १८ ॥
 विदुषा नैव कर्तव्यं कार्यमन्यत्र भागव ।
 अयोधितैस्तथा धृषाः^१ कार्या द्रव्यैर्यथाविधि ॥ १९ ॥
 अतः परं तु ते योगान्कारिचद्वयमि ताञ्छसु ।
 A 23 नखं कुष्ठं धनं मांसी शृक्च शैलेयकं जलम् ॥ २० ॥
 तथैव कुङ्कुमं लाक्षा चन्दनागुक्ष्णी नतम् ।
 A 24 सरला देवकाष्ठं च कर्पूरं कान्तया सह ॥ २१ ॥
 बोलं कन्दूकरचैव गुरगुलः श्रीनिवासकः ।
 A 25 सह सर्जरसेनैवं धूपद्रव्यैकविंशतिः ॥ २२ ॥
 धूपद्रव्यगणादस्मादेकविंशत्येच्छया ।
 A 26 द्वे द्वे द्रव्ये समादाय सर्जभागे नियोजयेत् ॥ २३ ॥
 नवे विख्याकवल्लयैः संयोज्य मधुना तथा ।
 A 27 धूपयोग्याभवन्तीह यथावत्त्वेच्छया कृताः ॥ २४ ॥
 त्वचं जातीफलं तैलं कुङ्कुमं ग्रन्थिपर्णकम् ।
 A 28 शैलेयं तगरं काष्ठं ताम्बूलं तगरं तथा ॥ २५ ॥
 मांसी सरावकुष्ठं च नवद्रव्याणि निर्दिशेत् ।

१. The *Gandharvāda* (folios 45-47 of P. O. R. I. MS) describes the manufacture of
 various kinds of धूप, with fanciful names such as अनङ्गमुन्दर, कोलाहल, कुमारधूप,
 २. The *Gandharvāda* also describes the preparation of धूप, Vide folios 12-15 of B. O. R. I. MS
 (Gandharvāda).

- A 23 नखं कुष्ठं धनं मांसी शृक्च शैलेयकं जलम् ।
 तथैव कुङ्कुमं लाक्षा चन्दनागुक्ष्णीरदम् ॥ २३ ॥
 A 24 सरलं देवकाष्ठं च कर्पूरं कान्तया सह ।
 बालः कुन्दूकरचैव गुरगुलः श्रीनिवासकः ॥ २४ ॥
 A 25 सह सर्जरसेनैवं धूपद्रव्यैकविंशतिः ।
 धूपद्रव्यगणादस्मादेकविंशत्येच्छया ॥ २५ ॥
 A 26 द्वे द्वे द्रव्ये समादाय सर्जभागे नियोजयेत् ।
 नखविष्याकमल्लयैः संयोज्य मधुना तथा ॥ २६ ॥
 A 27 धूपयोग्या भवन्तीह यथावत्त्वेच्छया कृताः ।
 त्वचं नाशीफलं तैलं कुङ्कुमं ग्रन्थिपर्णकम् ॥ २७ ॥
 A 28 शैलेयं तगरं कान्तां चोले कर्पूरमेव च ।
 मांसी सुरां च कुष्ठं च स्नान द्रव्याणि निर्दिशेत् ॥ २८ ॥

- A 29 एतेभ्यस्तु समादाय हभ्यं तत्र वयेन्मृषा ॥ २६ ॥
 सुगर्षयुतं स्नानं कार्यं कन्दर्पवर्धनम् ।
 A 30 ब्रह्मपुराणलक्ष्मणैर्विष्णुवैष्णवाश्चरमायुतैः ॥ २७ ॥
 स्नानमुत्तमगन्धिं स्वात्तमार्थेन योजितम् ।
 A 31 * बाहीपुष्पगन्धिं स्वात्तमार्थेन योजितम् ॥ २८ ॥
 बाह्याम्बुधनसंयुक्तं पाटलाकुसुमायते ।
 A 31 b * व्यापकं स्वाद्भुक्तैस्तुल्यगन्धिपमोहरम् ॥ २९ ॥
 नासिकावच्छब्दितं कुङ्किमादेन चार्पयम् ।
 द्विकेशरं वेणुगार्दं कुन्दपुष्पायते तथा ॥ ३० ॥
 शैलरादावर्षयुक्तं व्यक्तं मदनकं भवेत् ।
 A 32 मञ्जिष्ठा तगरं चोत्तं व्यापनसं नलम् ॥ ३१ ॥
 गन्धपत्रं च विन्यास गन्धतैलं * भवेन्नुभम् ।

9. Compare the चण्डिकाधितैल, mentioned in the गन्धमुक्ति section of the *Bṛhatasanhita* (c. A.D. 500) :—

“मञ्जिष्ठया व्यापनसेन शुक्रया
 त्वचा सङ्कुटेन रतेन चूर्णः ।
 तैलेन युक्तोऽर्घ्यमूलतयाः
 कोति तन्धर्वकाधितैलम् ॥ ६ ॥”

This verse has been incorporated in the *Gandhasutra* (Folio 8, verse 24 of B.O.R.I. MS).

As regards “सुगर्षयुतं स्नानं”, mentioned in verse 27 of the *विष्णुधर्मोत्तर* (गन्धमुक्ति), compare the following verse of नागरसर्वस्व (गन्धाधिकार) :—

“लग्गुष्मलकृतगरं चौराष्ट्रीं प्रविष्टयुक्तं च ।
 कर्तव्यंयुक्तं स्नानीयं तत् प्रशस्यते सज्जिः ॥ १२ ॥

—स्नानीयचूर्णवाचः ॥”

- A 29 एतेभ्यस्तु समादाय हव्यमयमेन्मृषा ।
 सुगर्षयुतं स्नानं कार्यं कन्दर्पवर्धनम् ॥ २६ ॥
 A 30 ब्रह्मपुराणलक्ष्मणैर्विष्णुवैष्णवाश्चरमायुतैः ।
 स्नानमुत्तमगन्धिं स्वात्तमार्थेन योजितम् ॥ २७ ॥
 A 31 बाहीपुष्पगन्धिं स्वात्तमार्थेन योजितम् ।
 बाह्याम्बुधनसंयुक्तं पाटलाकुसुमायते ॥ २८ ॥
 A 31 मञ्जिष्ठा तगरं चोत्तं व्यापनसं नलम् ।
 गन्धपत्रं च विन्यास गन्धतैलं भवेन्नुभम् ॥ ३१ ॥
 A 32 तैलं निषिद्धितं राम तिलैः पुष्पाधिरहितैः ।
 बाह्याम्बुधनसंयुक्तं गन्धेन ह्रु भवेद् भुवम् ॥ ३२ ॥
 एतासवहर्षोत्तमबाहीपल्लवनिष्काः ।
 बाहीपिष्टना वाहं स्वतया युक्तवायुः ॥ ३४ ॥

- A 33 तैलं निष्पीडितं राम तिलैः पुष्पाधिवासितैः ॥ ३२ ॥
 वासना पुष्पसदृशं गन्धने तु भवेद्द्रुतम् ।
 पूर्ववन्त्रोषयित्वा तु मुस्तं सेव्यं वचां निशाम् ॥ ३३ ॥
 अग्नीष्टमन्यस्कलुषं यथावदनुलेपयेत् ।
 उद्धृत्य चन्दनादि च शोधनं वमनं तथा ॥ ३४ ॥
 वर्जयित्वा विरेकं च शेषकर्माणि कारयेत् ।
 तद्वा भवति धर्मज्ञ वर्णकं विदिवप्रियम् ॥ ३५ ॥
 पट्वासासि कार्याणि वर्णकैः श्लक्ष्णचूर्णितैः ।
- A 34 एलालवङ्गकवकोलजातीफलनिशाकराः ॥ ३६ ॥
 जातिपथिकया सार्द्धं स्वतन्त्रं सुखवासकम् ।
- A 35 कर्पूरं कुङ्कुमं कान्तं मृगदर्पं हरेणुकम् ॥ ३७ ॥
 ककोलैलालवङ्गं च जातीकोशकमेव च ।
- A 36 द्रुक्पत्रं त्रुटिमुस्तं च लताकस्तूरिकं तथा ॥ ३८ ॥
 कण्टकानि लवङ्गस्य फलपत्रैश्च जातितः ।
- A 37 कटुकं च फलं राम कर्पिकाण्डां प्रकल्पयेत् ॥ ३९ ॥
 तन्मूर्च्छं खदिरं सारं दद्यात्तुल्यतुल्यार्पितम् ।
- A 38 सहकार्यसेनास्य कर्तव्या गुलिकाः शुभाः ॥ ४० ॥
 मुखे न्यस्ताः सुगंधास्ता मुखरोगविनाशनाः ।
- A 39 पूर्वं प्रक्षालितं सम्यक्पत्रफलववारिणा ॥ ४१ ॥
 शक्या तु गुलिकद्रव्यैर्वर्णितं सुखवासकम् ।¹⁰

10. Compare the following verses on मुखवास in the गन्धाधिकार of नागरसर्वस्व
 ; (2nd Tripathi's Edition, Bombay, 1921).

- ‘जातीफलकस्तूरिकर्पूरं चूनवारि-संस्थितम् ।
 धूपितमगुफकाशिष्ठकमधुगुडसितैश्च सुखवासः ॥ ७ ॥
- A 35 कर्पूरं कुङ्कुमं कान्तं मृगदर्पं हरेणुकम् ।
 ककोलैलालवङ्गं च जातीकोशकमेव च ॥ ३५ ॥
- A 36 त्वक्पत्रं त्रुटिमुस्तं च लताकस्तूरिकां तथा ।
 कण्टकानि लवङ्गस्य फलपत्रैश्च जातिभिः ॥ ३६ ॥
- A 37 कटुकं च फलं राम कर्पिकाण्डपुष्पकल्पयेत् ।
 तन्मूर्च्छं खदिरं सारं दद्यात्तुल्यं तु वासितम् ॥ ३७ ॥
- A 38 सहकार्यसेनाक्षमात् कर्तव्याः गुटिकाः शुभाः ।
 मुखन्यस्ताः सुगंधास्ता मुखरोगविनाशनाः ॥ ३८ ॥
- A 39 पूर्वं प्रक्षालितं सम्यक्पत्रफलववारिणा ।
 शक्या तु गुटिकाद्रव्यैर्वर्णितं सुखवासकम् ॥ ३९ ॥

A 40 कटुकं दन्तकाष्ठं च गोमूत्रे वासितं व्यहम् ॥ ४२ ॥

कृतं च पूगवद्राम¹¹ मुखसौगन्ध्यकारकम् ।

A 41 त्वरययोः समावंशौ सितमागार्धसंयुतौ ॥ ४३ ॥

नागबल्लीसमो भाति मुखवासो मनोहरः ।

कटुकफलनताम्बुत्वकुटिव्याधिपत्रै—

नलदनतमुराभिस्तुल्यभागान्वितानि ।

दिगुणितकृतमाप्राप्तातिकल्लोलसैव्यैः

शशिरसस्तमोऽयं गन्धपत्रं विदध्यात् ॥ ४४ ॥

निहितमिदमनर्थं कर्णपत्रं पुनस्त्याः

शमयति विविधानि श्रोत्रपालीगदानि ।

अपरमपि च यावत्काममामोदमत्तुं

भ्रमदलिपटलेन व्याप्यते वक्त्रभागः ॥ ४५ ॥

क्रमवर्धितं स्वगेला मांसी शटयगुक् कुङ्कुमं चापि ।

पनचन्दनजातीफललयङ्गकङ्कोलकर्पूरम् ॥ ८ ॥

अष्टांशसंशरोचनसुकलितमतिस्वल्पशर्करासहितम् ।

पिप्पला सहकारसैमुलवासो भूमिपालानाम् ॥ ९ ॥

See also ताम्बूलभोग (p. 85 of मानसोल्लास, Vol II, G.O.S., Baroda, 1939). Verses 574-976 refer to a गुटिका prepared of खदिरकापचूर्ण, कस्तुरिन्द्रोद, कर्पूररजस्, भीखरहक etc.

11. Compare the description of पूगवास in नागरसर्वस्व (c. A.D. 1000)

“कुलगरजातीफलकर्पूरसङ्गकेलाभिः ।

वरतनु वासव शीम पूगफलं भूमिपालानाम् ॥ ११ ॥”

The सुश्रुतसंहिता (वैद्यरथान्,) Chap. 46, verses 201-204 refers to पूगवास and its ingredients (See p. 441 of Vol. I of Marathi Trans. by Krishna-shastri Phadke, Bombay, 1921) :—

“कफपित्तहरं रुद्धं वनपत्रैर्दमलापहम् ।

कपायमीपन्मधुरं क्षिपित्फलं सरम् ॥ २०१ ॥

जातीकोशोऽथ कर्पूरं जातिरकुङ्कुमैः फलम् ।

कम्बोजकं लवङ्गं च तित्तं कटु कफापहम् ॥ २०२ ॥

लघु तृष्णापहं वक्त्रकलेददीर्गम्भनाशनम् ।

लम्बितः सुरभिः शीतः कर्पूरे लघुलेखनः ॥ २०३ ॥

तृष्णायां मुखधौने च वैरघ्ने चापि पुक्तिः ॥”

A 40 कटुकं दन्तकाष्ठं च गोमूत्रे वासितं व्यहम् ।

कृतं च पूगवद्राम मुखसौगन्ध्यकारकम् ॥ ४० ॥

A 41 त्वरययोः समावंशौ शशिरसिमागार्धसंयुतौ ।

नागबल्ली समो भाति मुखवासो मनोहरः ॥ ४१ ॥

इति श्रीविष्णुधर्मोत्तरे द्वितीयखण्डे मा० सं० रामं प्रति पुष्करोवाक्याने गन्धयुक्तिर्नाम
चतुर्विंशोऽध्यायः ॥ ६४ ॥”

The above chapter is preceded by chapter 63 called “भोज्यकल्पनाकथनम्” and is followed by chapter 65 called “राजधर्मवर्णनम्.”

In the foregoing extract on गन्धयुक्ति from the *Viṣṇudharmottara* I find verses 20 to 41 on गन्धयुक्ति from chapter 224 of the *Agnipurāṇa*. To enable scholars to mark the few textual variants I have reproduced the verses from the *Agnipurāṇa* below the footnotes as I found them in the printed edition of this Purāṇa (Venkateswar Press, Bombay). The following table will, however, show at a glance the relation of the *Gandhayukti* verses of the *Agnipurāṇa* with those in the *Gandhayukti* chapter of the *Viṣṇudharmottara* :—

विष्णुधर्मोत्तर Khanda II Chapter 64 (गन्धयुक्ति)	अग्निपुराण Chap. 224 (राजधर्म)	वि० ध० Kh. II Chap. 64 (गन्धयुक्ति)	अग्निपुराण Chap. 224 (राजधर्म)
Verse 1	A 20	Verse .. 23 ^b	A 26
“ 2	A 21	“ .. 24 ^b	A 27
“ 3	A 22	“ .. 25 ^b	A 28
“ 4		“ .. 26 ^b	A 29
“ 5		“ .. 27 ^b	A 30
“ 6		“ .. 28 ^b	—A 31a }
“ 7		“ .. 29 ^b	—A 31b }
“ 8		“ .. 30	
“ 9		“ .. 31 ^b	A 32
“ 10		“ .. 32 ^b	A 33
“ 11		“ .. 33 ^b	
“ 12		“ .. 34	
“ 13		“ .. 35	
“ 14		“ .. 36 ^b	
“ 15		“ .. 37 ^b	A 34
“ 16		“ .. 38 ^b	A 35
“ 17		“ .. 39 ^b	A 36
“ 18		“ .. 40 ^b	A 37
“ 19		“ .. 41 ^b	A 38
“ 20 ^b	A 23	“ .. 42 ^b	A 39
“ 21 ^b	A 24	“ .. 43 ^b	A 40
“ 22 ^b	A 25	“ .. 44 ^c	A 41
“ 23 ^b		“ .. 45	

The above table gives an impression that the *Gandhayukti* verses of the *Agnipurāṇa*, which are about half of the *Gandhayukti* verses of the *Viṣṇudharmottara*, have been borrowed by the *Agnipurāṇa* from the *Viṣṇudharmottara*.

I cannot say if both these *Purāṇas* have borrowed their *Gandhayukti* verses from an earlier common source. We must hunt up the *Gandhayukti* texts in other *Purāṇas* and correlate them with those in the *Bṛhatsaṃhitā*, *Viṣṇudharmottara*, *Agnipurāṇa*, *Nāgarasauvāsa*, *Gandhasāra*, *Gandhavāda* etc. In this way alone we can put the history of the *Gandhasāstra* on a secure basis.

Gaṅgādhara in his *Gandhasāra* tells us that the *Gandhasāstra* is helpful in the worship of gods (देवानां शुभमपूपसहितस्यार्चाविशेषकम्). This statement is corroborated by the references to perfumes prescribed for religious worship. I note below the following extracts from the *Kaṭhāpurāṇa* (Venkateswar Press, Bombay, śaka 1829—1907) which describe the perfumes to be used for such worship:— Chapter 73 (folio 189)— Description of गन्ध to be used for the worship of goddess —

“गन्धं च सम्यक् सुसुतं पुत्री वेतासमेरवी ।
 चूर्णीकृतो वा पुष्पो वा दाहाकर्मित एव वा ॥ ३७ ॥
 रसः सम्मर्ज्यो वापि प्राचर्चयोरुभय एव वा ।
 गन्धः वस्त्रविषः श्रोतो देवानां प्रीतिदायकः ॥ ३८ ॥
 गन्धचूर्णं गन्धपत्रं चूर्णं सुमनसस्तथा ।
 प्रद्यस्तगन्धपुष्पाणां वधचूर्णानि वापि द्व ॥ ३९ ॥
 तानि गन्धधानि स्युः स गन्धः प्रथमः स्मृतः ।
 पुष्पो मलयजो गन्धः स चूर्णीकृतमेव वा ॥ ४० ॥
 अशुक्लमृत्तिकायां वाप्यं पंकः प्रदीयते ।
 गन्धो दूषणमपुष्पोऽयं द्वितीयः परिधीर्हितः ॥ ४१ ॥
 देवदार्यं गुल्फमृत्तिकां सारान्ताचन्दनाः ।
 शिवादीनाञ्च यो दग्ध्वा पकते दाह्यो रसः ॥ ४२ ॥
 स दाहाकर्मितो गन्धः तृतीयः परिधीर्हितः ।
 सुगन्धकाशीक्षिप्यान्वीनि तिलकं तथा ॥ ४३ ॥
 प्रभृतीनां लोपोती निःशेष्य परिधकते ।
 स सम्यग्दीप्तो गन्धः सम्मर्ज्य रतीयते ॥ ४४ ॥
 भृगनाभिलघुद्रुमः कम्बोपोद्भव एव वा ।
 गन्धः प्राचर्चकः श्रोतो शोदकः सूर्यवर्धननाम् ॥ ४५ ॥
 धूपं गन्धसारानां चोदे पुष्पे च संस्थिताः ।
 यजमानादवस्थापि रते पंके च संस्थाः ॥ ४६ ॥

गन्धसारं सर्वरसं गन्धादौ च प्रयुज्यते ।
 मृगनाभिर्भवेद् घृष्टश्चूर्णोऽप्यन्यस्य योगतः ॥ ४७ ॥
 एवं सर्वे तु सर्वत्र गन्धो भवति पञ्चधा ।
 घृष्टादिभावादप्यन्यं गन्धः प्रीतिकरः परः ॥ ४८ ॥
 गन्धस्य विस्तरो भेदः प्रोक्तः कालीयकादयः ।
 सर्वः पञ्चविधैरेव प्रविष्टो भवति क्षणान् ॥ ४९ ॥
 गन्धो मलयजो यस्तु देवे पित्र्ये च संमतः ।
 तस्य पंक्तो रसो वापि चूर्णो वा विष्णुतुष्टिः ॥ ५० ॥
 सर्वेण गन्धजातेषु प्रशस्तो मलयोद्भवः ।
 तस्मात्सर्वप्रयत्नेन दद्यान्मलयजं तदा ॥ ५१ ॥
 कृष्णागुरुः सकर्पूरः सहितो मलयोद्भवैः ।
 वैष्णवी प्रीतिदो गन्धः कामाक्ष्यायारब्ध मेरव ॥ ५२ ॥
 कुङ्कुमागुरुकल्पीचन्द्रभागेः समीकृतैः ।
 त्रिपुराप्रोक्तो गन्धस्तथा चण्डिकायारब्ध शस्यते ॥ ५३ ॥
 देवतोद्देशपूर्वेण गन्धं संपूज्य साधकः ।
 दैवायेष्टाय बितरत्येतां सर्वसिद्धिप्रदं तदा ॥ ५४ ॥
 गन्धेन लभते कामान् गन्धो धर्मप्रदः तदा ।
 ज्ञानानां साधको गन्धः गन्धे मोक्षः प्रतिष्ठितः ॥ ५५ ॥¹²

The foregoing description of the different गन्धस and their application in the worship of deities is sufficiently informative. गन्ध is one of the five necessities of religious worship mentioned by the *Kalikapurana* in the line "गन्धं पुष्पं च धूपं च दीपं नैवेद्यमेव च" (chap. 73, verse. 101) and also described at length in the same context. Of the two items of religious worship (हविर्विधि), viz., "गन्धधूप" mentioned by the *Gandhasara* I have already recorded above the testimony of the *Kalikapurana* about गन्ध. I shall now

12. Gadgadhara in his *Gandhasara* calls the गन्धशास्त्रं as शिवसंगलदं i.e. fulfilling the three ends of human life viz. (1) धर्म, (2) आर्यं and (3) काम. He also calls the गन्धशास्त्रं as "देवानां ..अर्चोविधिर्यकम्" i.e. useful for the worship of Gods. This statement corresponds to the statement of the *Kalikapurana* गन्धे मोक्षः प्रतिष्ठितः ।

It will thus be seen that गन्धशास्त्रं is useful for fulfilling the four ends of human life, viz. धर्म, आर्यं, काम and मोक्ष.

record its description of धूप and its varieties as used in description reads as follows :—

Chap. 73 (folio 192):—

“धूपं वा कथितो दीपो धूपं च गृह्यते तुती ।
 माहादिरामस्तुतः सुगन्धोतिमोदः ॥ ३२ ॥
 दक्षिणामस्य कान्धस्य मयतस्येतस्य च ।
 परामस्ताववा धूमो निस्स्यो यस्य जायते ॥ ३३ ॥
 स धूप इति विज्ञेयो देवानां तुष्टिदायकः ।
 यशोहृत्कर्त्तृ वैष्णव तैर्दम्भैः परिपूजयेत् ॥ ३४ ॥
 ओषाग्निवत्सला कृत्वा न तत्पत्तमवाप्नुयात् ।
 भीचन्दनं च सरलः शालः कृष्णागुस्तथा ॥ ३५ ॥
 उदयः सुरासम्बन्धो रस्तविद्वज एव च ।
 पीतशालः परिमलो विमर्दोकाशस्तथा ॥ ३६ ॥
 नमस्करोत्तदाकृत्वा विष्णुसरोऽयं सादितः ।
 सन्तानः पारिजातश्च हरिचन्दनवस्तथैव ॥ ३७ ॥
 वृक्षेण धूपाः सर्वेषां प्रीतिदाः परिकीर्तिताः ।
 अशालः सह सुवेण भीमासः पद्मशालकः ॥ ३८ ॥
 कर्पूरः श्रीकृष्णैव परागः भीरुरामली ।
 लवणपीथः शतीव सराश्चूर्ण उकलः ॥ ३९ ॥
 जातीकोपस्य चूर्णं च गन्धः कस्तूरिका तथा ।
 कोदे हृत्ते च गदिता धूपा एते उदाहृताः ॥ ४० ॥
 यक्षधूपो ब्रह्मधूपः श्रीविष्णोऽगुणभर्माः ।
 पञ्चविधः पिण्डधूपः सुगोलः कण्ठ एव च ॥ ४१ ॥
 अन्धोऽन्धयोगा निर्याता धूपा एते प्रकीर्तिताः ।
 एतैर्विधूपयेद्देवान्पूजिभिः कृष्णकर्मना ॥ ४२ ॥
 येषां धूपोद्भवैर्पाण्डुरादि गन्धवन्ति जन्तवः ।
 निर्वासयन् परागरच कान्धं गन्धं तथैव च ॥ ४३ ॥
 कृष्णमरुतेति कञ्चैते धूपाः प्रीतिकराः पराः ।
 न यक्षधूपं वितरेन्माषाच कदाचन ॥ ४४ ॥
 न रक्तं विद्रुमं मही सुर्यं कद्रिलं तथा ।
 यक्षधूपः पुत्रिनाहः पिण्डधूपः सुगोलकः ॥ ४५ ॥

कृष्णागुरुः सर्परो महामायाप्रियः स्मृतः ।
धूपधूपेन वा देवीं महामाया¹³ प्रपूजयेत् ॥ ४६ ॥

मेदोमन्त्रासमायुक्ताश्च धूपान्विनियोजयेत् ।
परकीयांस्तथाप्रातांस्तेपि कृत्याभिमर्दिताम् ॥ ४७ ॥

पुष्पं धूपं च गन्धं च उपचारांस्तथापरान् ।
घ्रात्वा निवेश्य देवेभ्यो नरो नक्षमाप्नुयात् ॥ ४८ ॥

न भूमौ वितरेद्भूपं नासनेन घटे तथा ।
यथा तथाधारगतं कृत्वा तद्वनिवेदयेत् ॥ ४९ ॥

रक्तविद्रुमशाली च सुरथः सूरलस्तथा ।
सन्तानको नभेरन्व कालागुरुमन्वितः ॥ ५० ॥

जातीकोपाक्षसंयुक्तो धूपः कामेश्वरीप्रियः ।
त्रिपुष्पाद्यास्तथैवायं मत्स्यामपि नित्यशः ॥ ५१ ॥

सर्वेषां पीठदेवानां रुद्रादीनां च पुत्रक ।
एष वां कथितो धूपः शृणुतं नेत्रस्पर्जनम् ॥ ५२ ॥

येन तुष्यति कामाख्या त्रिपुरा चैव्यधी तथा ।

.....

चतुर्वर्गप्रदो धूपः कामदं नेत्रस्पर्जनम् ।

तस्माद्द्वयमिदं दद्याद्देवेभ्यो भक्तितो नरः ॥ ६१ ॥”

The above discourse on the use of धूप in religious worship may now be compared with the following section called धूपभोग¹⁴ in the मानसोल्लास of the Calukya King Someśvara (c. A.D. 1130):—

“अधुना धूपभोगोऽयं वर्यते कौरभोरुहः ।

साक्षा गुग्गुलु कर्पूर रालकुण्डुदक्षिणहस्तम् ॥ ६७ ॥

13. Cf. the use of incense in Egyptian sacrifice as illustrated by a wall-painting in the Tomb of Two Sculptors (about 1400 B.C.). No 92—A sacrifice to the Gods—Neb Amun accompanied by his mother. Thepu, pours oil of incense over braziers filled with offerings, which hot coals have been scattered, thus causing the oil to be ignited. The flames are set against the papyrus mat which holds the four jars of ointment. A formula records the presenting of incense and sacred gum to Amun, Osiris, Anubis and other deities. A urwat assists the performance of the ceremony. (See pp. 34-35 of *Egyptian Wall-paintings from Tombs and Palaces of the XVIII and XIX Dynasties* (1600-1200 B.C.) Metropolitan Museum of New York, 1930).

14. Vide *Manasollasa*, G.O.S.Baroda, 1939, Vol. II, pp. 144-145.

भीलवह दाद सरलं लघुकोष्ठं च बालकेः ।
मंसीकुङ्कुमवध्या च (रत्न) कस्तूरीगुतिवीजैः ॥ ६८ ॥

शङ्खनाभिनलैर्यैव लितामधुपुतं गुहः ।
समायेतानिचूर्णानि द्वयद्वयं विहाय च ॥ ६९ ॥

द्विगुणं लघुकूर्चं चूर्णधूरोऽयमुत्तमः ।
एतामेव हि तिलहेन मिथयेन्मधुमर्त्तिया ॥ १७० ॥

गुहेन पियङ्गवेत्यश्वात् पियङ्गुपुतं वरो मतः ।
द्व्याययेतानि तोयेन पिष्टानि मधुमर्त्तिया ॥ १ ॥

वर्तिलूपाणि शुष्काणि वर्तिधूरो मनोहरः ।
वीतिरूपमयो वापि सुवर्णपटितोऽथ वा ॥ २ ॥

एतयो वाऽपि मूगो वाऽपि सरःप्रः संपुटात्मकः ।
अङ्गारगर्भिते (तो) पियङ्गेनाम्बितो धूपमुद्गिरत् ॥ ३ ॥

मुलकर्णादिभिश्चिह्नैः पियङ्गुपुतं स्वयं ह्रमः ।
अङ्गारगर्भिते वान्ने चकम्पयेन संयुते ॥ ४ ॥

विकिरेदधूपचूर्णं तद्वारं वारमिति ह्रमः ।
दन्तेन रक्षिते शलदण्डे सुवाने बहुद्वयकैः ॥ ५ ॥

दण्डेन वा समायुक्तै धूपने सुचिसंयुते ।
सूचकाम्रे विनिक्षिप्य वति सधुदय वह्निना ॥ ६ ॥

स्वगयेत्सम्प (१५) टेनाथ रन्ध्रेर्धूपो विनिःसरेत् ।
करबलं चकम्पसंयुक्तं पाणिना परिवर्त्तयेत् ॥ ७ ॥

आत्मनोऽपि मुलं क्वापि प्रेयसीवदनेषु वा ।
करबलकम्पदण्डं तु धूपवर्त्तितमन्वितम् ॥ ८ ॥

अङ्गुष्ठान्तं क्षिपेद्वापि सोमपके वाऽपि निक्षिपेत् ।
धूपयेत् शुभं शय्यां वसनेनावगुह्यताम् ॥ ९ ॥

पञ्चशैतवासांसि पियङ्गुचूर्णकैः ।
यहं च पिहितद्वारं निरोधितगवाक्षकम् ॥ १० ॥

धूपयेद्बालैर्धूपैः पियङ्गुधूपसमुदभवैः ।
बिलासचतुर्गुणां हि नृपाणां च विनोदिनाम् ॥ ११ ॥

धूम्रोगोऽयमाख्यातः सोमेरवरमहीमुखा ।
सूक्ष्मोऽयमिदं धूपभोगोऽयमीरितः ॥ १२ ॥

The *Gandhasāra* of Gaṅgādhara states that the *Gandhaśāstra* or science of cosmetics and perfumery contributes to the pleasures of kings (राज्ञो लोषकम्). This remark is substantiated by the above section on *śūbhoga* composed by a king himself who expressly states that it is meant for royal use (विज्ञातचतुराणां हि नृपाणां च विनोदिनाम् । धूपभोगोऽयमाख्यातः etc.).

While the sections on *Gandhayukti* in the *Viṣṇudharmottara* and the *Agnipurāṇa* describe the manufacture of cosmetics and perfumery, the extracts from the *Kalikapurāṇa* and the *Manasollāsa* (c. A. D. 1130) illustrate the use of perfumes in sacred and secular spheres of Hindu life in medieval India (between A. D. 600 and 1300). Before we attempt a treatise on the history of Indian *Gandhaśāstra* it is necessary to exploit fully all available sources which contain references to the *Gandhaśāstra* either on its technical or cultural side. My own studies in the history of the *Gandhaśāstra* so far published have been designed with a view to providing enough material to other scholars who want to pursue this subject further on the strength of new sources, either Sanskrit or non-Sanskrit. The identification of the several aromatic ingredients mentioned in the texts on the *Gandhaśāstra* will have to be studied both from the technical and historical points of view, but I must leave this subject to more competent students of this subject than myself. My own interest in this subject is purely historical and cultural.

10. Studies in the History of Indian
Cosmetics and Perfumery
Some Recipes about Perfumes and Cosmetics in the
Gandhavāda Section of the *Rasaratnākara* of
Nityanātha Siddha (13th Century A. D.)*

During the last two years I have published some papers¹ on the history of *Gandhakaśāstra*. In these papers I have made an attempt to collect together some texts pertaining to the use and manufacture of cosmetics and perfumes from different sources, early or late. I propose in this paper to add some new material on this subject to what I have already recorded in my papers. This new material is found in a work on alchemy (*rasa-vidyā*) called the *Rasaratnākara* assigned by scholars to the 13th century A.D. My friend Rajavaidya J. K. Shastri published in 1940 an edition of the *Vādī-khaṇḍa* (also called ऋद्विलख—“वादिखण्डे ऋद्विलखप्रमाणम्”). Chapter 9 of this *Khaṇḍa* (pp. 159-171) deals with the manufacture of *ratnas*² (jewels) and cosmetics (*gandhavāda*) as stated in the following opening verse of the chapter :—

“सकारे शारभूतं सङ्गलमुलकरं सुप्रभूतं धनं वै
सताप्यं साधकेन्द्रेणुदमुलविधिना वक्ष्यते तस्य सिद्धये ।
रत्नादीनां विरोपाकरचमिह शुभं गंधवादं सम्यं
ज्ञात्वा तत्समुद्दिष्टं हनुमन्वपयं पावनं पञ्चितानाम् ॥ १ ॥

Nityanātha, the author of the *Rasaratnākara*, tells us in the above

**Jour. Gangānātha Jha Research Institute*, pp. 203-209.

1. Vide *Jour. Bombay University*, September, 1945, pp. 44-52; *New Indian Antiquary*, Feb.-March, 1945, pp. 185-193; *Adyar Library Bulletin*, Vol. IX, Part 4, 1945, pp. 143-151; *Bharatiya Vidyā*, July-Aug. 1945, 149-156; *Jour. Gangānātha Jha Research Institute*, May-Aug., 1946, pp. 279-294.

2. According to *Trishatya-prakāśa*, a work on astrology of the 13th Century by Hemaprabha Sūri, the Sun (भानुमान्) is the presiding planet for *ratnas* and Jupiter (वररसति) for cosmetics and perfumes :—

—“मन्त्रियुक्तमृद्विलखादीनां वाचस्तु भानुमान् ।” verse 39

—“श्वेतं हनुमन्कुर्युः कुर्याद्योर्विलखम् ।

स्वामी हृदयचिन्मये लग्नतत्त्वविदः पुनः ॥” verse 40 (Vide p. 9 of *वैद्योपाकरण*, ed. by R.S. Sharma, Lahore, 1946).

verse that plenty of wealth (*dhana*) is the essence of life as it bestows all happiness. For acquiring this wealth he is explaining in the present chapter the necessary means, viz. the knowledge of the manufacture of *ratnas* (Jewels or precious stones) and cosmetics and perfumes (*gandhavāda*).—Verily these remarks are true for all times as the professions which deal with the sale and manufacture of these luxuries of human life have been most lucrative, as vouched by historical records. Articles of jewelry have a fabulous value, as also cosmetics and perfumery. The observation of the *Pañcatantra* viz.

“एषानां गान्धिकं पर्यं किमन्यैः काञ्चनादिभिः ।

तत्रैकेन च यःश्रीं तच्छतेन प्रदीयते ॥”

states that of all trades the trade in perfumery is the best, because in it what one has purchased for one (rupee) can be sold for hundred (rupees).

The chapter then describes the processes of manufacturing such *ratnas* as पद्मराग, इन्दनील, मरुतमणि, गोमेदमणि, पुष्पराग, नीलमाणिक्य, मुस्ताफल, and प्रवाल, (verses 1—37). Subsequently verses 38—88 are devoted to the manufacture of हिंगूल, सिंदूर, सैंधव, सुवचेल, हिंगु, वंग, अम्लवेतस, मयी (ink)³ and घृत. Verses 89—131 deal with the preparation of cosmetics and perfumes. They are as follows :—

Page 167 (1) चन्दनकरणम् (Preparation of Sandal)

—“छेद्य निवृत्तं तु हस्तैकं रज्येदधः ।

तस्य मूर्ध्नि बिलं कुर्यात्तत्रैव नवगुणमुल्लम् ॥ ८६ ॥

पूरयेत्तेन काष्ठेन बिलं कृत्वा लेपयेत् ।

संधि मूलवयोर्नैव शुष्कं गजपुटे पचेत् ॥ ८७ ॥

स्वभावाशीतलं प्राञ्च तन्मूलं चन्दनं भवेत् ॥ ८९ ॥

(2) कर्पूरकरणम्⁴ (Preparation of Camphor)

—“पलत्रयं पचेद्भक्तं सप्तप्राजा भर्तुलम् ।

तद्भक्तं शीतलं कृत्वा गवां क्षीरैः प्रचलतः ॥ ९२ ॥

निष्कमात्रं च कर्पूरं क्षिप्त्वा तस्मिन् च पेयेत् ।

शुष्कस्य वंशनालस्य स्थूलस्य चोदरम् ॥ ९३ ॥

3. I have recorded this important *recipe of ink* (for writing on *Bharja* and palm-leaves) in my paper on the history of Ink-manufacture in India and other countries, like China, Japan, Egypt, Rome etc. (See *Pracnyavart* Calcutta, Vol. III, October 1946).

4. “कर्पूरकरणी” is described on *folio* 32 b of the B. O. R. Institute MS of गंधवाद with Marathi Commentary (in Raḍḍi collection).

केन्द्राजुसामेन काकाशुण्ड व कारके ।
 क्षिप्याव करकीपुनं तक्षिपतिनं कृते ॥ ६४ ॥
 वंशनालं पुनर्वंशं हे कर्करा व तन्मुक्तम् ।
 काकते विदिनं शोभं भूयते मिमनेच्छः ॥ ६५ ॥
 विष्णुवातालमुद्रणं शोषयित्वा तन्वायेत् ।
 कर्करं तस्य गर्भस्थं रक्षेत्कर्करमाकने ।
 कर्करं भावते दिव्यं यथावीर्यं न तद्वत् ॥ ६६ ॥”

(3) मवादीनां कर्करीकरणम्”

—“यनस्यार्थगन्धस्य बीजस्यैकस्य लवङ्गयेत् ।
 मवाभावे विनिक्षिप्य निम्बं पुंशेयत् तथा ॥ ६७ ॥
 पूर्णविषा क्षिपेत्तस्मिन् लवणं हवात् ब्रजेत् ।
 तेन कुर्यात् क्षिपेत्तस्मिन् चट्पनिम्बं च चन्दनम् ॥ ६८ ॥
 मृद्वशी पाचयेत्पाचयदास्ततां गतम् ।
 तच्छीतलं काष्णार्धं क्षिप्या तस्योत्तरे विधेत् ॥ ६९ ॥
 बर्हं केरकी मल्ली मातीपुष्पाणि तपुनः ।
 दिनं शुभ्रये बद्ध्वा मुलं तस्यैव रक्षयेत् ॥ ७० ॥
 ततः पुष्पाणि तैलस्य कर्करी मयमाचकाम् ।
 मापैकं शुद्धकुर्यात् तस्मिन्नेव विनिक्षिपेत् ॥ ७१ ॥
 विक्षिपेद्दि दृढयेन भग्नभाषादिकांशवि ।
 तत्तर्हं मयितं पूर्वस्यैव भावादिभाजने ॥ ७२ ॥
 वेद्येन्यस्तिकापुन्यैस्तद्भावं दिवलययम् ।
 भग्नमवति आचक्षिष्यैः परिमलेपि ॥ ७३ ॥”

Page 168 (4) कर्करीकरणम्”

—“मृद्वंशेन केतं वा तिलोत्वं पक्षपंचकम् ।
 कुदशीरां वरुणत्वं सर्वमेकं चोक्ते ॥ ७४ ॥
 मल्लिका, माकरी, माती, केरकी, शतपत्रिका ।
 चन्दानि च कुण्डीनि पुष्पाणि तत्र विक्षिपेत् ॥ ७५ ॥

5. See “कषाक्षिपौ करकी” on folio 32b of B. O. R. I. MS of the मन्धकार.

6. See my paper on the Use of Kams (glass) vessels in Indian pharmacy between A.D. 1100 and 1850 in *Bharatīya Vidyā*—(Nov.-Dec., 1946) pp. 147—160.

7. See “कर्करीची करकी” on folios 31 and 32 of the MS of मन्धकार (B.O.R. Institute).

दिनेकं मुद्रितं रक्षेत् पुष्पं निष्पीड्य संत्यजेत् ।
 सिक्कयं विशतिर्निष्कान् क्षिप्वा तस्मिन्वेच्छुनैः ॥ १०६ ॥
 यावत्सैलावरोधं स्यात् कर्पूरं चार्धनिष्कम् ।
 निष्कं मारजारजावादि क्षिप्वा तदवतारयेत् ॥ १०७ ॥
 अन्यपात्रे विनिक्षिप्य शीतलं तत्पुनः पचेत् ।
 क्षणमात्रात्तदुक्तार्यं क्षिप्वादि भाजने ॥ १०८ ॥
 सान्द्रं भवति तत्सर्वं यथाबीजं न संशयः ।
 पुथाणि बहुलस्यैव रत्नमालां समं समम् ॥ १०९ ॥
 तच्चूर्णमित्तुदंश्य कृतनालस्य चोदरे ।
 क्षिप्वा तस्य मुखं कृत्वा तन्मज्जाभिर्वृदा पुनः ॥ ११० ॥
 पुटेत्तृणाग्निना तावद्यावद् गंधो न दह्यते ।
 द्रुतिं तानि पुथाणि मुखं भित्वा द्रवं हरेत् ॥ १११ ॥
 कस्तूरीचर्मं निलोमं मुस्ताच्चूर्णं विचूर्णयेत् ।
 चूर्णस्य दशमांशेन सम्यक् कस्तूरिकां क्षिपेत् ॥ ११२ ॥
 पूर्वद्रावेण तत्सर्वं पेथितं गोलकीकृतम् ।
 कस्तूरी मदनाकारा किंचित्कार्या प्रयत्नतः ॥ ११३ ॥
 तत्सर्वं स्नायया शोध्यं मदना रक्षयेत्पुष्पम् ।
 गुटिकाः खण्डशः कृत्वा मदनैः सह मिश्रयेत् ।
 कस्तूरीचर्मणा बध्वा सम्यक्मृगमदो भवेत् ॥ ११४ ॥”

Page 169 (5) कुंकुम^१करणम् (i)

—“नारिकेरकपालं वा धूषटं वा निम्बकाष्ठकम् ।
 यद्विचिच्छुभ्रकाष्ठं वा तोयेन सह कारयेत् ॥ ११५ ॥
 तत्पादं रजनी चाथ तस्मिन्मध्ये विनिक्षिपेत् ।
 नैरिकं वा रज्ज्वर्यं तत्सर्वं कुंकुमं भवेत् ॥ ११६ ॥”

—कुंकुमकरणम् (ii)

—“वाल्मीकिपुष्पजं स्वायं घर्मे धार्य तु खरैरे ।
 विशाल्यं क्षिपेत्तस्मिन् पेथितं शुभ्रतं शुक्लम् ॥ ११७ ॥

1. The three recipes for the preparation of *Kunkuma* are important as they show the ingredients from which *Kunkuma* (Marathi कुंकु) of reddish colour was prepared in the 13th century for the use of Hindu married women. Elsewhere I have not come across any recipes for *Kunkuma* used by married women in the form of red spot on their foreheads as a sign of *Saukhya*. I propose to write a paper on the history of *Kunkuma-vilaka* for which I have collected some material.

तंडुलार्थं वपुं पुनं सर्वं काष्ठेन लोसयेत् ।
 कवीर्भूतं मन्त्रेण वाचसावद् धर्मं प्रचालयेत् ।
 ठालेनैव बटिकाः कृत्वा स्युः कुंकुमोपमाः ॥ ११८ ॥”

—कुंकुमकरायम् (iii)

—“पाषाणपुष्पपाषाणं सायकं शुभ्रं च तंडुलम् ।
 सिद्धपाप बटिकाः कार्पां घोषा स्युः कुंकुमोपमाः ॥ ११९ ॥”

Page 169 (6) दिव्यपुष्पः⁹ (i)

—“कृष्णचण्डिकां कुपारिकाद्रीं राघिकुंकुमम् ।
 नलमांक्षीं कर्जूरं मुस्तां कृष्णागुणः खिता ॥ १२० ॥
 चंदनं च दरीकानि चूर्णितानि विभिन्नेषु ।
 चूर्णं इत्येतेषु गुणैः सर्वमेकत्र कुहयेत् ॥ १२१ ॥
 लोहं लोहं चिपेतेन शिखायां लोहमुष्टिना ।
 दिनमेकं प्रयत्नेन बटिकां तेन कारयेत् ॥ १२२ ॥
 हस्तप्रक्षालितं कुप्यान्वालां निर्वाप्य तत्त्वयात् ।
 देवानां दिव्यपुष्पोऽयं मंत्राणां साधने रितः ॥ १२३ ॥”

—दिव्यपुष्पः (ii)

—“पाषाणमेरुचूर्णं तु गुग्गुलुं च पलं पलम् ।
 मांसी मुस्ता नलं बोलं चंदनागुष्णालकम् ॥ १२४ ॥
 लाङ्कागुणं कर्जूरं खिताकर्पूरसंयुतम् ।
 प्रति निष्कहयं चूर्णं कर्तुं कुंकुमं तथा ॥ १२५ ॥
 मायेकैकं चिपेतेन स्युः कुटपादुल्लसले ।
 खितातेन चिपेतेन चित्तोद्दरेण तद् ददम् ॥ १२६ ॥
 यामेकं कुहयेत्किं हि पियो दूयः शिबोदितः ।
 देशादेशाको देवः पूज्यं वदतं श्रीकृतः ।
 सर्वोभारयजनकः सर्वमंशोपनायकः ॥ १२७ ॥”

Page 170 (7) पुष्पद्विः

—“बबीलीरेषु संयुक्तं शुद्धं वस्त्रं पुनः पुनः ।
 भाग्ये घोषितं कुपारिकादेव दिनसप्तकम् ॥ १२८ ॥
 बाणोपुष्पलोकं तु निष्कं चूर्णितकणम् ।
 लोहं निष्कत्रयं योज्यं सर्वमेकत्र लोसयेत् ॥ १२९ ॥

9. See “पूपापी कर्णौ” on folios 45—47 of “गणपरा” (B.O., R.I., MS)

सुस्रावे चारयेद् घर्मे रम्ये वा काचचाजने ।
 आच्छादयेत्तु बस्त्रेण जलक्षिप्तेन तत्त्वयात् ॥ १२० ॥
 द्रवति तानि पुष्पाणि युंषाद्योगेषु तद्द्रवम् ।
 अनेनैव प्रकारेण पुष्पाणां च तृणकं तृणम् ।
 द्रुतिः कार्पा सुगंधानां गंधवादेषु योजयेत् ॥ १२१ ॥”

Verses 132 to 139 deal with पान्यदृष्टिकरणम् and द्रव्यादिदृष्टिकरणम्. The concluding verse 140 reads as follows :—

Page 171 —“आदौ सर्वदिशांतरेषु गमनं कृत्वा गुरोः संमुखत्वात्
 प्राप्तं भक्तिचलेन युक्तिविधिना सारातिशारं स्मृतम् ।
 तत्सर्वं धनचर्चनं निगदितं भूषिष्ठमध्वा (?) स्वचिद्
 भूपानां विदुषां महामतिमतां विद्वानभवेत्सामनेः ॥ १४० ॥”

The foregoing recipes of several cosmetic preparations described in detail are not imaginary, though they appear in a work on alchemy, which contains some mixture of fact and fiction. The experts in *rasa-vidyā* in mediaeval times, known as *Siddhas* did possess a supernatural bent of mind. In spite of this bent they were deeply interested in experiments of all kind in their search for gold. The cosmetics described in the recipes of Nityanātha Siddha are real and not miraculous though we might notice in these descriptions a tendency to attach miraculous properties to actual preparations, which gave comfort to the users of these cosmetics on account of their aromatic ingredients. Those who are interested in the industrial side of these recipes may try them and see if they have any value to-day. Whatever be their present worth they really have a distinct place in the history of Indian *Gandhaśāstra*.

The term “गन्धवाद” used by Nityanātha in verse 1 (गन्धवादं सम्यगं) and verse 131 (गंधवादेषु योजयेत्) is noteworthy. Of the two treatises on *Gandhaśāstra* discovered by me one is called “गन्धवाद” or a manual of *Gandhaśāstra* which records the several recipes for preparing cosmetics and perfumes.

II. Some Sanskrit Verses regarding the Manufacture of Rose-Water

Found in a Manuscript of the Bhojanakutāhala
Dated Śaka 1773 (=A.D. 1851)*

The *Bhojana-Kutāhala*¹ of Ragunatha Gaṇeśa Navahasta (1st *Pariccheda*) contains a section on the properties of different waters. This is called *पानीयवर्ग*. There are 3 MSS of this 1st *pariccheda* before me for comparison viz. (1) MS belonging to Rajavaidya Jagtap of Kolhapur dated Śaka 1773 or A. D. 1851, (2) another MS from Jagtap collection belonging to Samji Nayak Punde (c. A.D. 1680) and (3) a MS dated A.D. 1803 - No. 594 of 1899-1915 in the Govt. MSS Library at the B.O.R. Institute, Poona. The *पानीयवर्ग* referred to above is found in all these MSS, but the following extract called the “गुलाबोदकप्रकरण” or a section dealing with rose-water is found only in the first of the above copies of the work dated A.D. 1851. Presumably this extract is a later addition to Ragunatha's *Bhojanakutāhala* made by some one between A.D. 1803 and 1851.

The extract under reference is found on folio 57a inserted between the sections pertaining to “नारिकेल गुष्पाः” and “उपःपानादिगुष्पाः”². It reads as follows :—

“अथ गुलाबोदक³ प्रकरणं तद्वारणं च
कुत्रचं सत्पर्यानां विदुतं तत्र निश्चिपेत् ।
अल सत्परलं पात्रे रोप्ये बगं सुतंस्कृते ॥
ताम्रजे वाय तत्सोर्ध्वं दीलायंने⁴ निवेशयेत् ।

*Poona Orientalist, Vol. VIII, Nos. 1 and 2, pp. 1-5.

1. Vide my papers on this work and its author in *Journal of Bombay University*, X (New Series) Part 2, 1941; *Annals* (B. O. R. I.) XXII, 1942, pp. 254-263 and *Journal of Tanjore MSS Library*, Vol. III No. 2.

2. The word “गुलाब” means “rose-water”. Ragunatha Paṇḍita in his *राजनिबन्धनार्कोश* III, 14 refers to गुलाब as “मकरंदो गुलाबः स्यात्”. Evidently he understood “गुलाब” to mean “rose-water”. In the extract quoted above the word “गुलाब” means the *rose-flower* and “गुलाबोदक” means “rose-water”. Ragunatha Paṇḍita composed the above lexicon by order of Shivaji the Great about A.D. 1676.

3. For a picture of दीलायंने Vide Plate II (10)—page 144 of *Arjyan Medical Science* by Thakore Sahibof Gondal, London, 1896.

रौप्यपात्रे तनुष्वं तु पद्मादौप्यशरावया ॥
 आच्छाद्य तन्मुखं कृत्वा समतात्वाचयेच्छ्वेने ।
 मृदमिना मुहूर्तं तु पद्मादुद्धृत्य तज्जलम् ॥
 रौप्यपात्रस्थितं विद्वानेव पुष्परसोदरः ।
 सुशीतलः सुगन्धश्च प्रीत्यै वर्धयत्ये तथा ॥
 राक्षा दाहप्रशाल्यैर्गुलाब्जपरमाभिधः ।
 पुष्पद्वयः सुगन्धितः कपायगौक्षयो^४
 दाहभ्रमातिविमोहमुल्लापयतः ।
 नृष्यार्ति क (१) पित्तकफदोषहरः सरभ
 संतर्पणं चिरमरोचकहारकम् ॥''

When I found these verses in this MS of A.D. 1851 I was convinced of their interpolated character but as no such verses have been found in any medical or allied works I wanted to publish them after making inquiries of Vaidya Gaṅgādhara Śāstri Gune of Ahmednagar if he had come across similar verses on the manufacture of rose-water in texts early or late. Vaidya Gaṅgādhara Śāstri replied in the negative. I am, therefore, publishing these verses with a request to other scholars to publish any other verses of this type if they are discovered hereafter. It may turn out that these are the only verses on the manufacture of rose-water so far found and hence they have their place in a historical study of the rose-flower in India to which I intend to devote a special paper in the near future.

I am unable to determine the authorship of the extract pertaining to the manufacture of rose-water as found in a MS of A.D. 1851. It seems, however, that Vaidya Raghunathji Indrajī alias Katābhaṭ was acquainted with the above extract or a portion of it, as will be seen from the following passage on p. 452 of his निषेदु संग्रह published on 10th March 1893 at Junagad :—

4. Vide p. 181 (स्वस्थवृत्तपरिशिष्ट) of *AṣṭaĀṅga Saṁgraha* (Sūtrasthāna) ed. by R. D. Kinjavadkar, Poona, 1940. Here Pt. Kinjavadkar quotes some verses (from the वेम्बुनरुहल अष्टमस्कन्ध—(C.A.D. 1550) under पुष्पादिधारणम् in which the word गौलासि is used perhaps for rose-flower, verse 34—“भीलपदं चैव गौलासि” and verse 39—“गौलासि चमकं पुष्पं शकलेभ्यः परम्”.

“अथ पुष्पार्गः...॥ अथ पञ्चलो अर्धं पुष्पाक्षक्यं आदिनां नाम ॥
 पुष्पद्रवः पुष्पसारः पुष्पवेदस्य पुष्पजः ।
 पुष्पनिर्घोषकृच्चैव पुष्पजस्य वहाह्वयः ॥
 ॥ गुणाः ॥ पुष्पद्रवः शरः शीतश्चु वरः भयदाहृहा ।
 वातिदृष्टिचरोगघ्नो मुखरोगपिनाशनः ।
 प्रवर्तते ॥ पुष्पद्रवः सुरभिर्गुणिकयाप गौलो
 द्वाभ्रमांसिभिमोहपुलायनघ्नः ।
 दुष्प्राप्तिपिचकृच्छरः सरस्य
 संतर्पणक्षिरमोचक हारकस्य ॥”

The last verse of the above extract is identical with the last verse of the previous extract regarding rose-water. As Vaidya Katābhat merely introduces it with the remark “प्रवर्तते” I am unable to state the source from which he has quoted it in his book published 42 years after the Jagatap MS of the भोबनकुइल. Evidently the process of extracting rose-water given in the extract under reference shows that the author of the extract was thoroughly familiar with it. The rose-flower appears to have become popular in the Deccan during the Peshwa period of the Maratha history. In a poem³ composed by Bhagavantrao Yadava in praise of Nānāsāheb Peshwa we find the following verse containing a reference to गुलाब :-

“होती फार गुलाब चंपक लक आदिदी सेवितो ।”

In spite of the increasing acquaintance of the Poona court with the rose-flower in the 18th century it is doubtful if any quantity of rose-water was manufactured for court use in the first half of the 18th

3. See p. 152 of *B. J. S. Mandal Itihasa* (1915)—Note on “*५५ पेशव्यांच्या स्तुतिपर काव्य*” by P. N. Patvardhan (pp. 146-154). This poem consists of 54 stanzas in Marathi. It was composed by Bhagvantrao Yadava, whose great grandson Mr. Narayanrao Madhavrao, Jagadigar of Chincholi (District Aurangabad) showed it to Mr. P. N. Patvardhan. Tryambak, the son of Bhagvantrao Yadava, was killed at the battle of Kharda.—The poem refers also to चंपक, लोहाफल, छांदी etc. (p. 152).

Isabelist of flowers and fruits recorded by Saint Ramadāsa in his वागप्रकरण I find no mention of rose-flower. He mentions “गुलसुत” among flowers and fruits such as “पोपे”, “चंदो”, “जेराफा”, “अननस” all of which are late additions to Indian *materia medica*. (Vide pp. 627-628 of रामदासांचे वामप्रबंध, ed. by G. G. Goudhalekar, Bharatbhushan Press, Poona, 1906).

century. In fact we find Raja Shahu* writing to Kanhoji Angre on 13th April 1723 ordering him to supply *candles* and *gulab* (rose-water) for his own use. This reference seems to suggest that rose-water of local manufacture was not available at least in quantities sufficient to meet the court needs of Shahu who, having been brought up at the Mogul court, was fond of rose-water. The rose-water was a fashionable article of luxury at the Mogul court since Baber's time and its importation by sea and land into India is often noticed in contemporary records of foreign traders in the 16th and 17th centuries.⁷

It is difficult to find references to the use of *gulab* and its products in Sanskrit works on Indian *Materia Medica* composed even after the Mogul advent in India. I may, however, note here some uses of the rose-flower and its products as found in a work on medicine represented by two MSS,* one dated A.D. 1787 and the other dated A. D. 1824. This work is called

6. Vide letter No. 51 (Peshwa Daftar Selection No. 8) dated 13-4-1723—Shahu ordered Kanhoji Angre to procure for him (possibly from the British) 750 candles and *gulab* or rose-water in 20 bottles supplied to Kanhoji. The weight of the candles ordered was "कवा कात मय पाच सेर" as stated in this letter. In letter No. 52 (A.D. 1715) Shahu ordered from Kanhoji 100 bottles of rose-water (१०० गुलाब सिंसे), 400 candles and तंबाकू or tobacco of Surat and Bagdad.

7. Vide p. 142 of *Supplementary Calendar of Documents in the India Office (1600-1640)* London, 1928—12th January 1639—The ship *Diamond* arrived from Persia with *rose-water* etc.

8. One of these MSS is deposited in the library of the Rajawade Samshodhan Mandir, Dhulia. It is described by Vaidya Bindu Madhava Pandit in the *मिषरिव्लास* (September 1942) pp. 223-228.

This MS begins :—

“मीनयोशाय नमः ॥ भीररस्वत्ये नमः ॥ अथ वेदशास्त्र हकीम फरासीस नाम द्रुतविचिते परब्रह्म इन्द्रपुराणे नामह ॥ अथ रिग्विचार लिख्यते”

It ends :-

“इति श्रीवेदक समापता संबत मासे शिवर्त ॥ शके १७०६ ॥ माहे वीप ॥ श्लोक प्रमाण संख्या साडे तीन हजार पन् संख्या एकशे एकूण हजार ॥ पुस्तक वेदक संपूर्ण ॥”

The subjects of the 13 Chapters are :

- I—अनुविचार, मृगपरीक्षा, नाडीपरीक्षा ; II—किरेचनकल्प ; III—आसव ; IV—गुटिका ; V—प्राक् ; VI—Uses of mixtures against diseases ; VII—कादा ; VIII—चूर्ण ; IX—गुटिका (bigger type) ; X—चटनी and पाक ; XI—सिद्धतेल, स्नेह etc. ; XII—मलम ; XIII—रसायन.

हृषीकेश and consists of 13 Chapters. In Chap. III, which deals with the *काण्ड*, i.e. decoctions or extracts, there is reference to the गुलाब flower. Again in Chap. V, which deals with *कर्म*, the गुलाब flower is referred to. It is also found in Chap. X dealing with *चटनी* and *पाक*.

I have taken the above references from the description of the Dhulia MS of the work as given by Vaidya Bindu Madhava Pandit of the Ayurvedashram, Ahmednagar. According to Mr. Pandit the language of this work is a mixture of Sanskrit, Prakrit, Hindi, Urdu, Marwadi, Gujarati and other languages and dialects. Perhaps the MS would be useful for the students of the history of Indian linguistics as the MS is dated A. D. 1787, which suggests that the work was composed earlier than this date.

Another MS⁹ of the work has been recently acquired by the B. O. R. Institute. It is dated A. D. 1824. It contains the following references to गुलाब फूल and गुलाबखर¹⁰ :—

Fol. 11^a "सैना ता मे गुलाब का खर मासे ३"

Fol. 12^a "गुलाब के फूल सेर पाच फूल नहि होइ
तो पोसो गुलाब के खर मासे ८ ॥

"गुलाब फूल सेर ३ वा खर मासे ६ ॥

Fol. 19^a "गुलाब को राखी"

Fol. 21^a "गुलाब पाच खर"

9. This MS. is on paper (Size :—8"X4") and contains 32 folios (about 11 lines per page and 44 letters each line). It begins :—

"श्रीगुरुदेव नमः ॥ शिखरं चिरंगी कलावीका हकीमी ॥ अथ वेदकुराज ईशुलपुरा (१)
ई हकीमी कलावीका हकीमी ॥ भाषा बहुत बीबापी केकी ॥ प्रथम व्यासि अति बर्यन ॥ चैत्र वेहाल
ज्येष्ठ वीत पाताल स्थान ॥" etc.

It ends :—

"ईशुलपुरा वंशे हकुल शीष हकीमी कलावीका चिरंगी चिरंगी हकीमी आईलुलहन्, बीबा
हकीमी को कर्तु ॥ एके १७४६ तारखनाथ बल्ले मार्गशीर्ष बच १० दशमी सोम्यावसरे हकीमी
शेष समाप्त : ॥ ६ ॥ ॥ ॥"

10. On 4th September 1754 "आदर गुलाबी" was used to honour a descendant of the celebrated singer Tansen (Vide p. 99 of *Peshwa Daftar* 22) while on 10th February 1768 Gopikishori Peshwa sent some hotel sons to Daulatabad to get them scented with rose (Ibid, p. 114—"गुलानागुलाबी बाहावा करवाकरिता").

Fol. 22^a "गुलाब को बरत तोला १"

Fol. 22^a "गुलाब पाव कटार मोहारी के गुलाबन्ह को" etc.

(Fol. 25^a—"कामदी नीबु")

A MS of the present work dated A. D. 1878 has been described on pp. 71 and 302 of the catalogue¹¹ of Hindi MSS by S. S. Das who gives no information about the date of the work or its author.

We have noted in the foregoing discussion 4 MSS in all of the work हकीम फराकेश out of which three are dated A. D. 1787, 1824 and 1878 respectively. The Dhulia MS of the work is the earliest dated MS of the work so far discovered and hence important.

Another MS belonging to the B. O. R. Institute of a work called चूर्णकर्ण (वकरण) is dated A. D. 1849 (Samvat 1905, Śaka 1771). It refers to the preparation of *gulband* by the use of sugar-candy, rose-flowers, saffron etc. as follows :—

Fol. 14^b "गुलबंद करयें ॥ साकर चुवा १ खडीमिथी १ गुलाब फूल १ केसर ॥ ६ ॥ चूर्ण ॥"

The foregoing references to the use of the *gulab* flower in the Indian *materia medica* though introduced very late show clearly its growing popularity in India.

I shall close this short paper on the Sanskrit verses regarding the manufacture of rose-water by the following usages of the term गुलाब in the sense of *rose-water* and *rose-flower* found in the work of the celebrated Hindi poet Bihari (A. D. 1603-1663)¹² :—

Bihari¹³ in his सतसर refers to the use of *rose-water* in the following stanza :—

11. *First Triennial Report on the Search for Hindi MSS* by Syam Sundar Das, Allahabad, 1912.

Page 70—"No. 166—फरासीसी हकीम. Nothing could be known about this author of medical books. The following work of his has been discovered" :—"अंबुलिपुराण—A treatise on Hindu system of medicine. The MS is dated 1678 A.D."

Page 302-166 (a)—अंबुलिपुराण by फरासीसी हकीम 130 leave."—belonging to Kashi Prasad Saraf, Bijawar. Another copy is with G. S. Kavi of Datua.

12. Vide p. 538 of मध्यमगीन चरित्रकोश by S. Chitrav, Poona, 1937.

13. Vide p. 51 of गायकविपदावली (*Gāyaka Vipaśya* 21) edited by Bhaṭṭa Mathurānātha, N. S. Press, Bombay, 1933—The Sanskrit explanations of Bihari's stanzas are given by Bhaṭṭa Mathurānāth himself.

(विरहवर्णन) —

“जीवार् रीती छु लपि बिह ४पी शिलसात ।

बीच हि तूखि गुलाब की छोटी छु न गात ॥”

Explanation :—

“विरहसंतापमयलोचन शीतलीकरणार्थं सद्यः यावदेव पाटलासलिलस्य (गुलाब जल)
काचकूपिका श्रावयित्वा तावदेव सर्वमेव जलं परिशुष्य सुप्तमभूत् त्रिःपुराणि तद्वात्रे नास्तृणत् ॥
अथो संतापः ॥”

In the same poem Bihārī refers to the uses of rose-flower as follows :—

(शरीलीकुमार्यं) —

(१) “कमलत दिवै गुलाब के भया कमलत पाइ ।”

Explanation :—

“पाटलाकुसुममहाभयेन शनैः शनैश्चरणी ।

प्रसालकस्या अत्रि तस्याः हृदयं तत्कण्ठकृपा विभेति ॥”

(२) “पलुगी लतै गुलाब की परि हैं अन्न खरौट ।”

Explanation :—

“पाटलाकुसुमविक्रियाः स्वर्णं वि तव गात्रे विलेखनजं वृत्तं भविष्यति ॥”

It would be interesting to record some usages¹⁴ of the word गुलाब in other vernacular works of the 16th and 17th centuries in the manner of the Hindi poem of Bihārī.

I close this paper with a request to the students of the history of Indian medicinal science and other scholars to publish any Sanskrit or vernacular texts pertaining to the manufacture of rose-water preferably prior to A. D. 1800.

14. Videp. 1138 of *Proceedings of Indian History Congress, Calcutta, 1939*. Mr. N. L. Ahmad describes the *rose-water festival (Sūd-i-gulabī)* at the Court of Shah Jahan (A. D. 1628-1658) as follows :—

“*Sūd-i-gulabī* (rose-water festival) one of the daintiest of Court festivals, was celebrated with taste and elegance on the 13th of the Persian month Tir, which marked the commencement of the Rainy Season in India. The princes and the prominent nobles presented the Emperor with jewelled flasks containing rose-water, jujube tree flower juice and the aroma of orange flowers. The other courtiers made him offerings of enamelled, gold and silver flasks.”

Evidently the rose-water used for the above festival was possibly that imported from Persia and other places outside India.

12. Recipes for Hair-dyes in the Nāvanitaka (c. 2nd Century A.D.) and their close Affinity with the Recipes for Ink- manufacture (after A.D. 1000)*

Recently I published a paper¹ on the History of Ink-manufacture in India, recording some recipes for *ink-manufacture*, the earliest of which belonged to the 13th Century A.D. In all these recipes I noticed the use of ingredients, herbal or metallic, used for giving the necessary colour to the ink. I now find that these recipes have a close affinity with the recipes for hair-dyes (Keśarāgah) given in a text,² which is 1000 years earlier, if not more, than the Rasaratnākara of Nitya-Nātha-Siddha, who records the earliest recipe for ink, so far as I know. I propose, therefore, to record in this paper a *brief analysis* of the texts about *hair-dyes* of c. 2nd Century A.D. and compare it with that of the texts about *ink-recipes* (c. A.D. 1200 onwards) already recorded by me in my previous paper.

Chapter 10* of Nāvanitaka (Prakarana II) reads as follows :—

“ [...कर] व [१] रक [] तिलतैलेन पाचयेत् ।

न [न] स्वाभ्यञ्जनयोगाय [] सिद्धः पलितनाशनः ॥ १ ॥

प्र [पु] एव [रीक.....] ।

.....॥ २ ॥

**Bharatīya Vidyā* (Bombay, 1950), Vol. XI, pp. 40-45.

1. *Vide Prācyavṛṇī* (Calcutta, 1946) Vol. III, No. 4, pp. 1-15.

2. This text is *Nāvanitaka* edited by Kavirāj Balwant Singh Mohan (from the *Édition Principale* of the text by Dr. R. Hoernle), Lahore, 1925—Chapter X of *Nāvanitaka* deals with Hair-dyes (केसरगाः) verses 1-27—On p. 9 of his Introduction the Editor observes :—
“...the Second Century A.D. may be taken provisionally as the time of the compilation of the *Nāvanitaka*.”

* I give below the English Translation of this Chapter from Dr. A. F. R. Hoernle's *Trans. of Bower MS* (Calcutta, 1893) pages 164-166:—

Twenty-seventh Leaf: Reverse

The Tenth Chapter : Formulae for Hair Dyes

I

(Verse 891) Boil..... and oleander in sesame-oil. This, applied as an ermine or an Ointment is an approved remedy for turning grey hair into black.

II

(892 and 893a) A paste made of Prapaṇḍarika and.....(893a) and applied as a plaster, is a remedy for turning grey hair into black.

[.....] [१] पौषं श्रेयः पलितनाशनः ।
 गेवना कान्मात्री च शतपुष्पास्तथा ॥१॥
 कनेव शङ्खः शेषा मर्कटकुलकविदाः ॥२॥
 नीलोका ते [२] च [३] च क्लृप्ता च विपत्ती ।
 कनेव मुष्टिः शेषा । मर्कटकुलकविदाः ॥३॥
 कपाम्बुकायाश्च पूर्वं पञ्च [४] च श्रेष्ठः ।
 कलमुक्ता मृगं कलेष्टिलिप्ता च ॥४॥
 कलेष्टिलिप्ता शिरो निवेष्टितं न मयिष्यति ॥५॥
 कुम्भपत्रं कपलीं कुम्भपिप्पलीं च ।
 दंष्ट्री च क्लृप्ता च मृगो मृगकल्पः च ॥६॥
 विपरीतनाः शिरो निवेष्टितं क्लृप्तनाशनम् ।
 कर्मणः कलं कुम्भान् पलितं न मयिष्यति ॥७॥
 श्वेत (१) कलपत्रं क्लृप्तकः पलं च मृगकल्पः ।
 श्वेतकुम्भे विपरीतं कुम्भं क्लृप्तमपि क्लृप्ताम् ॥८॥

III

(893) and (894) *Shamuk-mam*, garden-nighthade *Shatapushpa* (*Pentstemon graveolens*), and *amam-mam* (894a) if applied to the hair, cause them to become as black as antimony.

VI

(894b and 895a) Indigo, rock-salt, and long pepper, made with water into a paste (895a) if applied to the hair, cause them to become as black as antimony.

V

(895b and 896) First let the head be washed with chebulic and emblic myrobalsam; (896) then prepare a paste of *Alambarbha* (*Sphaeranthus indicus*) and indigo, and with it, while warm, anoint the head; then the hairs will not turn grey.

VI

(897 and 898) Sulphate of Copper, *Morita* (*Cyperus rotundus*), sulphate of iron, bile of a turtle, powdered iron, Danti (*Baliopernum myrtanum*), *Sahadeva* (*Sida rhomboides*), and *Bhāgarkīja* (*Eclipta alba*), one part of each, (898) boiled with oil of *myrobalsam*, area remedy for turning grey hair into black and if it is applied regularly as an ointment, it will prevent the hair from turning grey.

VII

(899 and 900) One prastha of the juice of *Bhāgarkīja* (*Eclipta alba*), the same quantity of milk, and one pala of liquorice, boiled in one *Kojava* of oil, will make even a crane to turn black. (900) it will remove wrinkles and grey hair for twelve years within a week and for one hundred years, within a month if administered in the form of an errhine.

VIII

(901 and 902) Two pala of the root of *Ramatarpi* (*Rosa alba*) one pala of liquorice, half a pala of *śivaraka* (*Symplocos racemosa*), and ten pala of oil of balitic myrobalsam, (902) boiled by the heat of the sun in an iron vessel for ten days, and administered as an errhine, make grey hair to become of the same colour as the large black-bee.

नम्रावति वसिष्ठसितं द्वादशकंश्च स्रुतायेव ।
 मातेन च वर्षद्वयं नलः कर्मफलमेव ॥१॥
 रामतस्या हे मूलमते पतं च मयुफल ।
 द्वात्र (व) रस्यार्धस्य द्वात्र च ज्ञानकुलेभ्यः ॥२॥
 क्षादित्तेन विष्मं पात्रं द्वात्र्यांस्ते दत्तमानि ।
 कुमांस्तलेः कर्म फलसकृदर्थं वसिष्ठानि ॥३॥
 क्षाम्यतस्तस्याः सप्तः सप्तः पतं च मयुफल ।
 सक्त्य सर्वमेतदेवो मृदुगिना विपत्तेः ॥४॥
 क्षाम्यननं कुमां पतितमसितं तथैव ददत्तम् ।
 एतस्तः कर्तुं गजाम्बु निवर्तकति हस्ति ॥५॥

IX

(903 and 904) One prastha of the juice of amblic myrobalan, the same quantity of clarified butter, and one pala of liquorice:—all this together should be boiled over a gentle fire. (904) In application as an ointment will give sight to the blind, and black colour to grey hair; and if powerfully administered as an emetic, it will even restore one's lost sight.

X

(905-909) Take equal parts of no more than one aksha, of each of the three myrobalan, indigo, and blue lotus, also of the fruit of Pippliraka (*Vangueria spinosa*), (906) sulphide of arsenious, roots of long pepper and leaves of sahacara (*Barleria cristata*), add a decoction of Jamba, earth from the roots of the Jamba tree.

Twenty eighth Leaf : obverse

(907) Fruit of Kakubha (*Terminalia arjuna*), and two kudava of sesame-oil, and boil the whole in oil of baleric myrobalans slowly over a gentle fire.

(908) Administer it now as an emetic for fifteen days : then on the sixteenth day the noble patient will have left no white hair, his scalp will be black. (909) his face and eyes will look well, and all his hair will be of a deep dark colour so says Agastya, the best of seers.

XI

(910-916) Take the three myrobalan, flowers of sahacara (*Barleria cristata*) Jamba, *Karumarya* (*Gmelina arborea*), flowers of kakubha (*Terminalia arjuna*) kernel of the mango, and fruit of Pippliraka (*Vangueria spinosa*), (911) also sulphate of iron, flowers of Asana (*Terminalia tomentosa*), indigo, blue lotus, knots of the root-stalk of the lotus, sulphide of arsenious, black mould, and powdered iron, (912) also both *tapakirika*, both *S'atvika*, *Madayanti* (*Jasminum Sambac*), Juice of Bhūgarāja (*Eclipta alba*) and oil of baleric myrobalan. (913) Mix the whole with a decoction of Asana (*Terminalia tomentosa*) and let it stand unboiled for ten days in a vessel of iron. Then boil it thoroughly over a gentle fire, (914) and add to it one half as much of s'ukti, which had then kept placed in *Mudga* (*Phaseolus Mungo*) and *Māra* (*Phaseolus Roxburghii*). Then on the completion of the half month, having kept it well protected in the mean time, administer this preparation. (915) Having prepared one's body with the three myrobalans, and dieting on Khichari, one should use this oil as an emetic, in doses of one s'ukti at a time, with care and in sheltered spot. (916) Whoever that has a white head, permit one prastha of this oil to be given to him as an emetic, he will, after the administration of it, possess black hair,

त्रिकलां च समां कुर्यामीलां नीलोत्पलानि च ।
 अक्षमामृतमृगान्फलं पिण्डारकस्य च ॥१६॥
 अञ्जनं पिप्पलीमूलं पत्रं सवचरस्य च ।
 जम्बूकपायः कर्तव्यः जंबव (जूजू) लाञ्छ मृ [सिकाम्] ॥१७॥
 ककुभस्य फलं कुर्यात् द्वी तैलकुडवी तथा ।
 एतद्देभीतक (के) त (तै) ले शनेमृद्वग्निनापचेत् ॥१८॥
 म [...] सराहा [नि] नस्तः कर्मस [माच] रेत् ।
 तः प (ो) दशमे अङ्क न रवेतः कृष्णमूर्धजः ॥१९॥
 सुषकनयनः श्रीमान्भवेद्दीपशिरोरुहः ।
 हयुवाचेह भगवान् अगस्यो वदतां वरः ॥२०॥
 विपलासहचरकुसुमं जम्बूकाभ्यर्ककुम्भकुसुमञ्च ।
 चूतफलस्य च मध्यं तथैव पिण्डारकफलञ्च ॥२१॥
 कारीरममलनकुसुमं नीलीनीलोत्पलं विसम्पदी ।
 अञ्जनमञ्जनवर्षाब्ध कर्दमो लोहचूर्णञ्च ॥२२॥
 द्वे कण्टकारिके द्वे च शारिरे दापयेच्च मदयतीम् ।
 श्वेत (र) अरुचं चाथो तथैव वेभीतकं तैलम् ॥२३॥
 अवनक्यायास्तुदितं पात्रे कार्पासले दशाहानि ।
 श्वेतमेतदनिमे दग्धं सम्यक् सृष्ट्वग्निना विपचेत् ॥२४॥
 मुद्गेष्वपि माषेषु च सुकं श्याम्यमर्धमादा [य] ।
 पूले ततोर्धमासे कृतरक्षन्तःप्रयोक्तव्यम् ॥२५॥
 विपलाभाधितकायः कृष्णशो शुभितमस्य तैलस्य ।
 एकान्तरं मुनियतः मुनिवाते नस्ततो दद्यात् ॥२६॥
 तैलमर्धं त्वेतथः सपञ्चनामयेत नाविकया ।
 उपयुक्ते श्वेतशिरा सङ्गृह्यकेशः पुनर्भवति ॥२७॥
 इति केशरागः^१

The ingredients¹ of the foregoing recipes for *Hair-dyes* which are supposed in the above verses to make the grey or white hair jet-black are as follows :—

(1) तिलतैल = AHK = Sesame Oil.

1. Almost all these ingredients are mentioned in the *Aṣṭāṅgurhodaya* of Vagbhata II (8th or 9th Cent. A.D.). They are, therefore, recorded and explained by K. M. Vaidya in his *अष्टाङ्गहृदय*, Trichur, 1936. I have marked the ingredients in the above list with the abbreviation AHK to indicate that they are mentioned in the *अष्टाङ्गहृदय* and explained by K. M. Vaidya.

- (2) रोचना = गोरोचना (AHK)=Bezoar, Gall-Stone, Serpent-Stone.
- (3) काचमाची = ? काकमाची (AHK)=*Solanum nigrum* (कमणो)
- * (3) नीलीका, नीलिका, नीली=Dyer's Indigo (AHK).
- (4) पिप्पली = Long pepper (AHK), Marathi पिपळो.
- * (5) अमया = हरीतकी (AHK)=Ink nut, Chebulic myrobalan.
- * (6) आमलक = Emblic myrobalan (AHK), Marathi आमळा.
- (7) अलंबुक = ? अलंबुका (AHK)=A kind of sensitive plant : Marathi लाजाळु भेद.
- (8) दुधम् = दुधकम् (AHK)= $\frac{1}{2}$ Calamine, Carbonate of Zinc
(Sulphate of Zinc=Mar. कलसापरी
- (9) मुस्तम् = मुस्ता (AHK)=Nutgrass, *Cyperus rotundus*, Marathi मोषा.
- * (10) कालीसम् = Green Vitriol (AHK)=Iron Sulphate, Marathi हिराकस.
- (11) कुर्मपितम् = ? कुर्मपितम् .
- * (12) अयोरजः = लोहचूर्ण (See No. 40 below). AHK mentions अयस् and लोहम् .
- (13) दंती = Croton plant (AHK)=*Jatropha montana*, Marathi जामालगोट.
- (14) सहदेवा = (*Sida rhomboidea*, according to Hoernle).
- * (15) मृक्षराजः = मृक्षराजः (AHK)=Traling eclipta, Marathi माफा.
- * (16) विभीतकः = Beleric myrobalan (AHK), Marathi वेहेडा.
- (17) पयस् = क्षीरम् (AHK)=Milk.
- (18) मधुकम् = यष्टीमधु (AHK), Sweet-wood, Liquorice, Marathi ज्येष्टीमध
- (19) रामतकणी=AHK Mentions रामः = अशोकः, Perhaps रामतकणी may be a sprout of अशोक tree.
- (20) शावरकः = श्वेतरोम (AHK) Lodh tree (white variety).
- (21) अलुः = विभीतक (AHK)=Marathi वेहेडा (See No. 16 above)
- * (22) काष्णोयस् = Black iron (Cf. कृष्णलोहम्) (AHK) = काललोहम् = Steel (कृष्णायसम्).
- (23) घृतिम् = घृतम् (Ghee) AHK.

*This asterisk mark indicates that the ingredient is found in *Ink-recipes* (after c. A. D. 1000).

- *(24) विटला—AHK (Three myrobalans इरीतछे, विमीतक, आमलक).
 (25) नीलोत्पलम्—Blue lily (AHK), *Nymphaea Caerulea* etc.
 (26) विषहाक वृक्ष—Fruit of विषहा tree (See विषहा = Apte's Dictionary विषहा (AHK)—Mauritius Plum).
 (27) अञ्जनम्—Sulphide of Lead (AHK), Marathi सुग्मा.
 (28) पिपलीमूलम्—Piper root (AHK), Marathi पिपलमूल.
 *(29) लवङ्ग-पत्रम्—Leaf of नीलगुण मिरर (Justicia Echolium) Marathi काळा कोरंटा (AHK).
 (30) जम्बू-फलम्—Black Plum or Jamoon (AHK), Marathi जम्बू.
 (31) ककुम-फलम्—Fruit of कर्जुनवृक्ष (AHK), Marathi कर्जुन बादर.
 *(32) वैमीतक-तेल—Oil of विमीतक (वेरडा).
 *(33) लवङ्ग-कुसुमम्—Flower of लवङ्ग (See No. 29 above).
 (34) काश्मर्यः—काश्मरी (AHK), Marathi शिवण, गोमारी वृक्ष.
 (35) ककुम-कुसुमम्—Flower of कर्जुन वृक्ष (See No. 31 above).
 *(36) चूत-फल-मध्यम्—आम्रफल बीज (AHK) the seed of mango fruit.
 *(37) कालन-कुसुमम्—Flower of Kino tree (AHK), Marathi कलशा.
 (38) विलम्ब-वी—विलम्ब-वृक्ष (AHK) Knot on the lotus Stalk.
 (39) अञ्जनवर्णः कर्म—? Mud of the colour of अञ्जन (See No. 27 above).
 *(40) लोहचूर्णम्—Powder of iron (See No. 12 above) लोहम् also means अशुभ (AHK) *Agallochum*.
 *(41) अण्डकारिका—अण्डकारी (AHK), Marathi गिण्ठी, Wild Eggs Plant.
 (42) शारिवा—शारिवा (AHK), Marathi पांढरी काचडी, Indian Sarsaparilla.
 (43) मध्वती—'पातकी (AHK) according to रन्डु
 = 'काठमलकी (according to रामचन्द्र).

1. मध्वती may mean मध्वनिका, mentioned by Susruta. Dallapa (c. A. D. 1100) explains मध्वनिका as मैदी (Henna), with the colour of which women paint their finger-nails (See my paper on the History of Mendi (Henna) in the *Annals* (B. O. R. Institute, 1947), Vol. XXVIII, Parts 1-11 pp. 14-25). I may note here that Susruta mentions मध्वनिका as an ingredient in an *antra-raga* or unguent for royal use. In the *Neumittala* मध्वनिका is prescribed as an ingredient in a recipe for Hair-dye. Though it is difficult to prove Dallapa's equation of मध्वनिका with मैदी (Henna) we must admit that मध्वनिका of Susruta and मध्वन्ती of the *Neumittala* (2nd Cent. A. D.) were plants yielding a dye which was used in the preparation of cosmetics and hairdyes before A. D. 400, the later terminus for the date of Susruta.

*(44) अस्न-व्यायः = Extract or decoction of अस्न (See No. 37 above).

*(45) काल्पायस-पात्रम् = Black iron vessel.

(46) सुक्कम् = शुक्कम् (AHK) Vinegar.

Those who are interested in the chemistry of the recipes of Hair-dyes described in the Nāvanitaka may study the properties of the above ingredients and see how far the recipes are effective in making the grey or white hair black. Some of the ingredients in the above list are obviously used as dye-producing agents in these Hair-dyes. In the recipes for ink also I find similarly some dye-producing agents. I note below such of these agents as are common to the recipes for Hair-dyes and those for Ink-manufacture :—

Hair-dye Recipes in <i>Nāvanitaka</i> (c. 2nd cent. A. D.)	Ink-Recipes after c. A. D. 1200
चिफला (No. 24)	Formula for Ink in <i>Rasaratna-kara</i> (c. 13th Cent. A. D.) :— चिफला = No. 24
सूतः (No. 15)	सूत = No. 15
कृष्ण (No. 29) = Black कोरंटा	कोरंटा = No. 29
वृक्षस्य मूत्रम् (No. 36)	वीजास्य = No. 36
वृक्षस्य (No. 27)	महलात = Marking nut कालीरक्तम् = Oleander (Mar. कसेर) ताम्रपात्रम् = Copper vessel केलः = a kind of gum (Mar. बेल) वृक्षजलम् = lamp-black Cf. No. 27 <i>Ink-recipes : verses about 300 years old recorded by Muni Puriyajaya ji</i> सहवर = ? No. 29 (सहवर) भृङ्ग = No. 15 चिफला = No. 24
काली (No. 10) Green } Vitriol }	काली = No. 10
लोहम् (No. 40)	लोह = No. 40

— नीले = No. 3

— इन्डुल from इन्डुले

— रोस

— विष्णुद = निम्ब

— मन्साक

— लावारस = Lac dye

— गुल्म (पात्र) = रात्र (पात्र) See Apte's Dictionary.

— कृष्ण (कुम्भम्) No. 37 }
— कृष्ण (कपास) No. 44 }

— कृष्ण (कसे) = No. 37 and 44

— गुन्द (लाव) from लदिर tree

— रात्र (मन्बन)

Ink-recipes recorded in Appendix V to *Lekhapaddhati* (G.O. Series, Baroda, 1925, p. 95)

— उद्वर

— चूच

— विटला

— कालीर

— लोहम्

— नीली

— इन्डुल

— रोस

— कर्पूरिका (No. 41) = सिन्धु

— सिन्धुवृक्षलस (Marathi देवली)

— उवलीर

— लावारस or मन्साक

— रात्रमन्बन

— निम्बगुन्द, लदिरगुन्द, कृष्णगुन्द

A glance at the above table will show that out of more than 40 ingredients of Hair-dyes-recipes recorded in the Navanitaka (about 2nd century A.D.) about 10 ingredients are found in the recipes for Ink-manufacture that were current in India after c. A.D. 1000. These ink-recipes may have been current in India even before A.D. 1000 but we have not discovered any documentary evidence to prove their exact composition is, however, reasonable to suppose that the chemical properties of certain

ingredients, having once been recognized by ancient Indians, it was easy for them to use these very ingredients for the manufacture of different products for which they could be used with advantage. At any rate the Chemistry of Indian Ink-manufacture is closely related to the Chemistry of Hair-dyes. Whether the one has been evolved from the other it is difficult to say in the present stage of our investigation. To produce a deep black or blue black Hair-dye was the object of the Hair-dye recipes, while to produce an ink of these colours was also the object of the Ink-recipes. The fastness of these colours was also desired by the manufacturers of Hair-dye and Ink respectively.

Varahamihira (c. A.D. 500) in his Brhat-Samhita (Chapter 78—Gandhayukti) refers to the importance of Hair-dye and records a recipe for it as follows (pp. 419-420 of J. H. Athalye's Edition, Ratnagiri, 1874).—

‘‘सर्गाध पूषाधमृषापाचं न शोभते शुक्लशिरोवदस ।
 वस्मादतो शुष्करागसेवा कुर्वाद्ययेवांजनभूषणानाम् ॥ १ ॥
 कीदे पाचे संवृत्तान् कोदवापाच
 शुक्ले वस्त्राणोदपूषेय वाफम् ।
 विद्यान् वृक्षं मृत्तिं शुक्लाम्लशेते
 दत्त्वा तिष्ठेद्रेष्टवित्वाकैरुचैः ॥ २ ॥
 वाते द्वितीये प्रदरे विहाय
 दद्याच्छिरस्वामलक-प्रलेपम् ।
 संक्ष्वाद्यनः प्रहरदयेन
 प्रक्षालितं कान्धर्वमुचैति शीर्षम् ॥ ३ ॥
 पञ्चाङ्गिरः स्नानमुगंधतेलेः
 कोदवाङ्गन्यं शिरसोपनीय ।
 हृदयेष्व गंधैर्विविधेष्व धूतैः
 अन्तःपुरे रात्रस्तर्ल निवेदेत् ॥ ४ ॥’’

The ingredients of the above recipe for a hair-dye are as follows :—

- (1) लौहपात्र—Iron vessel
 and लोहचूर्ण—Powdered Iron
- (2) कोदवल्गुलाः=Grain of इरीक (Marathi)
 or *Paspalum Scrobiculatum*
- (3) अकंपत्राणि=Leaves of Madar (Marathi कंठ)
 or Swallow-wort
- (4) आमलक=Marathi आम्रका, *Emblis Myrobalan*

Of the above four ingredients *two* have been mentioned both in the *Nāvanīlaka* (c 2nd Century A.D.) and the *Ink-recipes* (after A.D. 1000). These *two* are (1) लोहचूर्ण and (2) ग्रामलक (included in सिफला). The remaining *two* ingredients viz. (1) कोदण्डतण्डुल and (2) शर्करा are evidently an addition to the ingredients for *Hair-dyes* mentioned in the *Nāvanīlaka*.

STUDIES IN THE
HISTORY OF TĀMBŪLA

13. References to Tāmbūla in Indian Inscriptions between A.D. 473 and 1800*

Though the history of the betel-chewing habit of the Aryans in India for about 2000 years can be easily established on the strength of literary sources, it is difficult to get any references to this habit in inscriptions especially prior to A. D. 1000. It is, therefore, necessary to record whatever references one can gather in inscriptions in respect of *Tāmbūla* or betel with its ingredients like the *Chunam*, *Catechu* etc. In continuation of my studies in the history of *Tāmbūla* and its ingredients,¹ I record below some references to *Tāmbūla* in inscriptions with a view to providing to my historical study a steel frame of inscriptional data, the chronology of which is more definite than that of literary sources on which I have depended for the history of the cultural aspects of *Tāmbūla*.

The earliest reference² to *Tāmbūla* occurs in an inscription of A. D. 473. In 1939, I made inquiries with my esteemed and learned friend Dr. H. N. Randle, Librarian, India Office Library, London, about references to *Tāmbūla* if any, in Greek and Roman sources. Dr. Randle replied to me seven years after my inquiry. It is very rarely that scholars who are engrossed in their own work, remember inquiries from brother-scholars for a long time and send helpful replies to such inquiries. I, therefore, reproduce below Dr. Randle's reply dated 28th September, 1946 with my grateful thanks to him not only for this reply but for his scholarly co-operation with me for more than twenty years as the Librarian of the India Office Library.

**Sarṇpa Bharatī* (Hoshiarpur, 1954), pp. 208-215

1. I am thankful to my friend Dr. Lokesh Chandra of Nagpur for drawing my attention to a botanical study of the ingredients of *Tāmbūla*, viz. '*The story of Pan-Chewing in India*' by M. Govinda, Deputy Superintendent, Govt. Gardens, Lal Bagh, Bangalore (Botanical Museum Leaflet, Harvard University, Vol. 14, No. 8, (15-1-1951), pages 181-214). The economic importance of the betel-nut palm is very great. About 8/10 million dollars worth of betel-nuts are used annually in India. Over 56,000 tons of betel-nuts are imported into India annually. All the surplus betel-nut production of Ceylon, Straits Settlements, Indonesia etc., is absorbed by India. The acreage of betel-palm cultivation is as follows :— Bombay State (22,700 acres), Madras (108,600), Mysore (34,500), Burma (30,750), Bengal and Assam (greater acreage than any other State).

2. This reference has been mentioned by my friends Shri R. N. Saleore and Shri A. N. Galati in their recent publications noted below :—

(1) *Life in the Gupta Age*. (2) *Patoli in Gujarat*.

The para pertaining to *Tambala* in Dr. Randle's letter referred to above reads as follows :—

'I have had in mind since 1939 an inquiry which you then made as to references in Greek and Roman authors to *betel*. Schoff in his translation of the *Periplus* says that McCrindle was mistaken in finding a reference to *betel* there. The reference is to trade in cassia-leaves. Certainly *malabathron* represents *tamala-patra* and one does not see any reason why *betel-leaf* should have been exported. I think the result is negative, i.e. there is no reference in Greek and Latin.

I shall be interested to learn how far back you have traced reference, to *betel* in Sanskrit works. I remember a reference in the *Mandasor Silk Weavers' inscription* of 473 A. D. (Fleet's *Gupta Inscriptions* No. 18) lines 11-12 (of the inscription) :—

“तास्यकान्तपुषितोऽपि सुवर्ण-हार-
ताम्बूल-पुष्पविणिना समलंकृतोऽपि ।
नारीजनः प्रियमुपैति न तावदश्रयाम्
यावन्नवदृश्य-वस्त्र-युगा नि धत्ते ॥”

I took this to mean :—

'Now women-folk may be young and lovely, and they may have the customary garland and *pañ* and flowers to hand, but they will never go to meet a lover in the trysting place unless they have first put on their two-piece garment of silk'.³

The stanza quoted above from a silk-weavers' inscription of A. D. 473 would serve as a good advertisement for any silk-manufacturing modern mill as it advertises silk garments in quite a modern fashion. In fact the ancient Indian silk weavers rightly claimed the credit of providing an added charm by their silk garments to young and beautiful ladies bedecked with gold necklaces and flowers and with their lips reddened by the use of *Tambala*. This make-up of ancient Indian damsels remains almost unchanged during the last 1500 years, with the only exception of the lip-stick which is now used for giving colour to the lips instead of the use of *Tambala* for the same purpose. But the use of the lip-stick has not spread to the country side, where the use of *Tambala* is very common as an aid to beauty.

3. Fleet's translation of the verse is as follows :—

Page 85—“(Just as) a woman, though, endowed with youth and beauty (and) adorned with the arrangement of golden necklaces and *betel leaves* and flowers, goes not to meet (her) lover in a secret place, until she has put on a pair of coloured silken cloths,—(so) etc.”

[The correct text of line 3 in the verse quoted above is as follows :—

नारीजनः प्रियम् उपैति न तावद्-श्रययाम् Ed.]

The reference to *Tambāla* in a Gupta inscription of A. D. 473 supports the present belief of some scholars that *Tambāla* was introduced into India from the South Sea Islands like Java, Sumatra etc. during the early Gupta period as a result of the increased maritime contact of India with these islands. The references to *Tambāla* and its ingredients found in Kālidāsa's works, and the early medical texts like the *Caraka Samhita*, *Kaṣyapa Samhita*, *Sūtrata Samhita* etc. are in harmony with this inscriptional reference of A. D. 473, which further confirms the verses about *Tambāla* in the section on Cosmetics and Perfumery (*Gandhayukti*, chapter 77) in the *Bṛhat-Samhita* of the celebrated astronomer Varāhamihira, who was born about A. D. 490 according to S. B. Dikshit.⁴

In the Nagar inscription of Dhanika dated (Vikrama) *Samvat 741* (= A. D. 685) edited by S. S. Guleri in the *Bhārata-kaumudī* (Dr. R. K. Mookerji Commemoration Volume), Allahabad, Part I, 1945, we find references to *karpūra* (camphor) and *Tambāla* in the following extract:—

Page 274—lines 8 and 9 on the inscription:—

“वचनं चन्द्रनिभं ललाटकलके-पक्षं लल्लोचनं ।

दत्ताङ्ग (के) पि जलादिद्रुका तनुतरे कर्पूर-धूसीवरा

भर्तुर्वज्रमया तयापि न हृतो यः (कोप) तापोद्गमः ॥ १० ॥

स्यालोत्तलोचनजलप्लुतिलाञ्छितानि

लभ्यालकानि ललितस्मितवर्तितानि ।

त(ता)म्बूलारागरहिताधरभाञ्जि वस्य

कोपश्चकार वदनाभ्यस्त्रिन्दरीयाम् ॥ ११ ॥”

The foregoing extract gives us a description of the sorry plight of the wives of the enemies as a result of the exploits of the king, whose wrath brought tears to the eyes of these wives and removed the smiles on their faces and the red colour⁵ of *Tambāla* on their lower lips.

The following references to *betel-nuts* and *Tambāla* in old *Kannada*

4. *History of Indian Astronomy* (in Marathi), Poona, 1896, p. 212.

5. The first Western mention of camphor (*camphura*) occurs in the Greek Medical writer Aëtius (c. A. D. 540) but it probably came through the Arabs (vide article on *Camphor*, in *Hobson-Jobson* by Yule and Burnell, London, 1903, p. 151). It has been suggested that the word for camphor was originally Javanese in which language *kapur* appears to mean both *lime* and *camphor*.

6. The mention of the colour produced by *Tambāla* chewing preumes the use of two main ingredients viz. *Chunam* and *Catechu*, the antiquity of which has been established by me for about 2000 years (see my article in this volume).

inscriptions in South Kanara and the Bellary District of the Madras Province are noteworthy as they show the production of the *betel-nuts* and *betel-leaves* between A. D. 750 and 962 in South India. South Kanara is still famous for its *betel-nuts* as it appears to have been more than 1200 years ago. The *Kannada* inscriptions under reference are as follows:—

(1) *Inscription of A. D. 750-70* (South Kanara of Madras Province) refers to the word '*adakeya*' meaning 'of *areca-nuts*' (vide p. 115 of '*Historical Grammar of Old Kannada*' by G. S. Gai, Deccan College Research Institute, Poona, 1946).

The word '*adake*' means '*areca-nut*.' The word for nut-cracker viz. '*adhitta*' current in the Marathi language for more than 400 years is of *Kannada* origin as I have proved in my paper on the *Indian Nut-cracker*.¹

(2) *Inscription of A. D. 962* (Bellary District of Madras Province) refers to '*Tambulam*' (*areca-nuts, leaves etc.*, vide p. 163 of G. S. Gai's *Grammar of Old Kannada* referred to above).

The production of *betel-nuts* on a large scale in the districts of the Bombay Presidency including the Karnatak and South Indian districts from A.D. 1000 onwards is amply vouched by the following inscriptions:—

A.D. 1028—A stone-slab inscription at Hosur in the Gadag Taluka of the Dharwar District of the reign of Jagadekamalladeva I records the grant of an *areca-nut garden* and house sites made by Aycha-gavunda to the *basadi* constructed by him in memory of his wife (vide *Inscription No. 65* on page 55 of *Bombay Karnatak Inscriptions*, Vol. I, Part I, Madras, 1940, *South Indian Inscriptions*, Vol. XI, Part I).

A.D. 1061—*Ibid.*, *Inscription No. 96* (Dharwar District) records the gift of one *papa* and 100 *areca-nuts* on every *areca-palm garden* to 400 *mahajans of Brahmapuri*.

A.D. 1050—*Inscription No. 107* (page 82 of *South Indian Inscriptions*, Vol. IX, Part I, Madras, 1939) records the gift of *land with some rows of areca-nut trees*, a flower-garden and an oil-mill to Vidyānidhi Paṇḍita for the service of God.

A.D. 1079—*Ibid.*, *Inscription No. 141* records the grant of land for the service of God Rameśvara. The five-hundred merchants of the place made a gift of *kāpi* per load of *betel-leaves*.

1. See *Bharata Itihāsa Sahrodhana Maṇḍala Quarterly*, Poona, 1948, pp. 8-14.

- A.D. 1135⁹—*Ibid.*, Inscription No. 232 records the 'gift of 500 leaves for the service of the God *Jakhesvara*.' This is a gift by some *Settis* of place.
- A.D. 1142—*Ibid.*, Inscription No. 238—An officer under *Virapandava-deva* and other persons made a grant of the toll on three lacs of *areca-nuts* for the service of the God *Gavareśvaradeva*.
- A.D. 1292—*Ibid.*, Inscription No. 344—Merchants of various countries are said to have granted one *tara* of *betel-leaves* out of every *nade* for the service of God.
- A.D. 1147—Inscription No. 8 in the volume on *Kolhapur Inscriptions* (by K. G. Kundangar, 1939) refers to one *Bammanayya* the *Prime Minister, the head of the betel-leaf department* (lines 33-34 of the Inscription on p. 82.)
- A.D. 1144) Dr. B.A. Saletore refers to *areca-nuts* and *betel-leaves* in A.D. 1163) inscriptions. (vide p. 151 of Vol. I of *Social and Political Life of Vijayanagar*).
- A.D. 1166—Inscription No. 13 of *Kolhapur Inscriptions* refers to grant of land for the '*betel-leaves of God Cenna Keśava*' (lines 66-69 on p. 112).
- A.D. 1176—Inscription No. 14 (*Kolhapur Inscriptions*) refers to taxes on imported articles like *pepper, sugar, jaggery* and *betel-nuts*. It further refers to an assembly of oilmen granting one spoon of oil on each extraction from each shop every year for the *betel-leaf of God* (line 52, p. 120).
- A.D. 1193—Inscription No. 2033 of *Malaya Simha* of *Tripuri* refers to '*Harisimha, son of Jagatsimha, who was betel-nut distributor* (vide p. 282 of D. R. Bhandarkar's *List of Northern Inscriptions and Epigraphia Indica*, Vol XIX, pp. 296 ff).
- A.D. 1235—Inscription No. 18 (*Kolhapur Inscriptions* by K. G. Kundangar, 1939) of the *Yadava* king *Singhanadeva* refers to the grant '*for the betel-leaves of God Bhavaśuddhadeva*' (line 64, p. 153).

8. In the encyclopaedic work '*Mṛ nasollās*' (G. O. Series, Baroda, Vol. II) composed by the *Calukya* King *Somesvara* about A.D. 1120, there is a chapter on *Tambula* (*labbha*), which describes in detail the different ingredients of *Tambula* and their use. The names of places which produced the best kinds of *betel-leaves* and *betel-nuts* have been mentioned in this chapter, which is perhaps the earliest medicinal special account of *Tambula* as used at the royal court.

A.D. 118.—Inscription No. 15 (Kolhapur Inscriptions) refers to betel-leaves sellers⁹ making a grant of 100 betel-leaves on one load for the maintenance of the betel-leaves of God Habbelvara (lines 88-90, p. 137).

At present the use of betel-nut and cocoanut on all auspicious and religious functions is very common in India among the Hindus. It is worth while undertaking an investigation into the origin and history of this use. For this purpose it is desirable to record the different words for the betel-nut and the cocoanut recorded in literary and inscriptional sources. The lexicon *Amarakośa* (between c. A.D. 500 and 800) records the synonyms for the betel-nut and the cocoanut as follows :—

Kaṇḍa 11 (बनोपनिषां) — p. 212 of N. S. Press Edition, Bombay, 1905.

Cocoanut—‘नालिकेरं तु लाङ्गुली ॥ १६७ ॥’

Bhānuji Dikṣita (c.A.D. 1630) says that नालिकेर and लाङ्गुली are two synonyms for नारिकेल or cocoanut.

Betel-nut—‘फेडा दुष्टा : कमुको गुवाकः¹⁰ लपुः ॥ १६६ ॥’

Bhānuji Dikṣita says that these are five synonyms for प्लक्ष commonly known as ‘तोषारी’ (‘पञ्च प्लक्षस्य’ ‘तोषारी’ इति स्वशास्त्रे).

The *Bengal Inscriptions* edited by Mujumdar refer frequently to नारिकेल (cocoanut) and गुवाक (betel-nut) plantation on the lands donated¹¹ to certain persons by the kings of Bengal as will be seen from the following references :—

9. With the acquisition of the betel-chewing habit by the Aryans in India, there arose a class of traders in *Tambāla* called *tambāla* class, which later became a caste with the name *Tambālī*. At present the *Tālī* (oilman) and *Tāmbālī* (seller of *Tambāla*) are regular castes in the Indian caste-system. The history of the *Tāmbālī* caste is worthy of a careful study.

10. Wilson, H. H., in his *Sanskrit Eng. Dictionary* p. 306, explains the word ‘*guvaka*’ as follows :—

‘गुवाक म(-कः). The betel-out-tree (*Arca fauvel* or *Catechu*)

R. ११ to १२, affix क and उ converted to क्व irregularly’.

It is worth while tracing the history of the word ‘गुवाक’ in sources earlier than *Amarakośa* with a view to determining its exact etymology. It is for linguists to say if this word is really a Sanskrit word.

11. Paul, P. L., in his *Early History of Bengal*, Calcutta, 1939, p. 131, describes the Administrative system and the regular taxes revealed by the grants of the Pāla kings. In this connection he observes :—

‘It is interesting to note that in the land grants it is specially said that the donee is to have the privilege of the enjoyment of *madhuka*, *mango*, *jach-fruit*, *betel-nut*, and *cocoanut* trees. This goes to show that the king had some share from their income. This is further confirmed by the fact that in the *Sāhitya* *Parīkṣā* grant of *Vijayaprasena* the income derived from the betel-leaf plantation is to be enjoyed by the donee’.

- (1) *Copper-plate of Viśvarūpa* (vide p. 178 of *Bengal Inscriptions* by Mujumdar, Vol. III, 1929; see also *Indian Historical Quarterly*, Vol. II, No. 1, March 1926, pp. 77-86).

Line 45—Mention is made of 'वरज' in the sense of *Betel-leaf plantation* in which sense this word is used in Bengal.

Line 50—'गुवाकशत' = 100 *betel-nut trees*.

Line 53—'गुवाकमूल्यसमेत' = together with price of *betel nuts*.

Line 54—'गुवाकवस्तुभू' = land in which grow *betel-nut trees*.

Line 60—'गुवाकनारिकेला.....भूमिः' = land in which are growing *betel-nut trees* and *cocoanut trees*.

Line 61—'गुवाकनारिकेलदिकं लग्नावयित्वा' = causing plantation of *betel-nut trees* and *cocoanut trees*.

- (2) *Sundarban Copper-plate of Lakṣmaṇasena* (*Bengal Inscriptions*, Vol. III (1929), p. 169, ed. by Mujumdar).

Page 171—'सगुवाकनारिकेल...भूमाग'

Page 425—Plate of *Keśavasena*

Line 51—'सगुवाकनारिकेला (भूमिः)'

Page 112—Plate of *Lakṣmaṇasena*—'सगुवाकनारिकेलः'

Page 102—(Plate of *Lakṣmaṇasena*)

Line 39—'सगुवाकनारिकेलः'

Pages 93 and 97—'डालिम्ब'क्षेमधीना'

- (3) *Copper-plate* (Dacca Dist.) of *Bhojavarman* (about A. D. 1100) (*Bengal Inscriptions*, Vol. III).

Page 24—'साम्प्रतनसा सगुवाकनारिकेला'

(land 'with mango, Jack fruit, betel-nut and cocoanut trees').

Page 8—Copper-plate of *Śrī Candra*—'साम्प्रतनसा/सगुवाकनारिकेला'

- (4) *Anuta Copper-plate of Lakṣmaṇasena*—(*Inscriptions of Bengal*, Vol. III, Varendra Research Society, Rajshahi, Bengal, 1929)

Page 87—'सगुवाकनारिकेल'.....सगुवाकनारिकेल'

('a plot of land...with betel-nut and cocoanut trees'—p. 90).

We have recorded above a few references to betel-nut plantations in Bengal from the inscriptions of Bengal kings whose chronology¹² is as follows :—

12. *Dalimba* (*Dādīma*), i.e. the pomegranate tree was transplanted according to *Sino-Ironica* by Laufer, 1919, pp. 285-86, into India from Iranian regions in the first centuries of the Christian Era. This tree is not mentioned in Vedic, Pali or early Sanskrit literature. The word *Dalima*, *dādīma* etc. is traceable to Iranian *dulim*, reconstructed on the basis of Chinese transcription.

13. Vide p. 101 of *Early History of Bengal* by P. L. Paul, 1939 (Calcutta).

1. Lakṣmaṇasena (27 years)—c. A.D. 1178-1205
2. Viśvarūpasena (14 years, son of Lakṣmaṇasena)
3. Bhojavarmā¹⁴ (about A.D. 1100)

In the light of the above chronology we are warranted in concluding that the betel-nut plantations were a regular feature of agriculture and economics of Bengal between c. A.D. 1100 and 1300.

It is possible to find references to *Tambala* in inscriptions of Northern and Southern India posterior to A.D. 1300. I hope some expert in the study of inscriptions would collect and record such references with a view to reconstructing the economic history of the *Areca-nut* and allied products in mediaeval India.

I conclude this short record of references to *Tambala* in inscriptions from A.D. 473 onwards by adding the following late references to *Tambala* to the present study:—

(1) Dr. B.A. Saletore in his *Social and Political Life of Vijayanagar* Vol. II, p. 180, mentions an inscription of A.D. 1422 which describes the conquest of a Jain general. In this connection the inscription mentions the women of the conquered people as follows:—

'By their bimba-like lips, deprived of the redness (caused) by the betel'.

(2) In the *Journal of the Annamalai University* (March 1941, p. 318) an inscription of the time of the Nayaks of Tanjore from Pattiswatam (No. 257 of 1927) refers to a dispute regarding the procedure in the receipt of betel-leaves and areca-nuts during marriages.

14. *Ibid.*, pp. 79-80. Bhojavarmā was the last known Varman King. He was the son of Samudravarmā by Trailokyasundarī. Samudravarmā was the son of Jajnavarmā, a contemporary of Vigrahapala III (c. A.D. 1045-1072). The Varman were most probably ousted by Vijayasena (c. A.D. 1097-1139).

14. Studies in the History of Tāmbūla—Use of Tāmbūla outside India between A. D. 650 and 1900.*

In the series of papers projected by me on the history of *Tambūla* (use of betel-nut and betel-leaf for chewing purposes) in India. I have so far published two papers, one on the history of Indian Nut-cracker¹ and the other on the history of the use of *Lime* and *Catechu* in *Tambūla*². In the latter paper I have recorded some evidence about the currency and antiquity of *Tambūla* in Indo-China. In this connection it may be worthwhile recording some evidence about the existence of the use of *Tambūla* in countries adjacent to India or otherwise. The following notes collected at random during the course of my cultural studies may be helpful to other scholars to record similar notes from sources not available to me.

1. Arthur A. Perera in his article on *Glimpses of Singhalese Social Life*, (*Indian Antiquary* 1904) records the following interesting story about the *Cocoonut* and the *Areca tree* :—

Page 231—"An astrologer of the Beravaya caste once told a King that a particular day and hour was so auspicious that anything planted then would become a useful tree. Thereupon the King directed the astrologer's head to be severed and planted, and this grew into the *crooked cocoonut tree*. The King was so pleased with it that he got his own head planted and it became the *straight areca tree*."

**Journal of the Travancore University Manuscripts Library*, Vol. VI, Nos. 1-2, pp. 1-14.

1. Vide pp. 8-14 of *B. I. S. Mandal Quarterly* (Poona, 1948). In this paper I have established the use of the betel-nut-cracker (*adhitta*) up to about 1300 A. D. The Marathi word *adhitta* is derived from a Canarese word for this instrument current in the 14th century A. D. A Marathi word, viz., *Pophal-phodhya* for *nut-cracker* was current in the Deccan about 1230 A. D. as it is found in a Marathi *Mahamubhāsa* work *Līlācaritra* (uttarardha). Details of these references will be found in my paper on *Tambūla* published in the Volume mentioned in foot-notes below. As regards the use of nutcrackers in Europe, vide *Bulletin of the Museum of Fine Arts*, Boston, December, 1949, No. 270, pp. 76-77, where a bronze object (figure 6) of 6 inches in length (of the shape of scissors) has been identified as a *nut-cracker*. It was found at Lille and most probably it originated in Northern France or Franco-Flemish centre in the 14th century A. D.

2. Contributed to the *150 Anniversary Volume* of the Asiatic Society of Bombay,

The story explains in a funny manner the contrast of crooked coconut plantations with the straight areca plantations in Ceylon.³

2. In an *Account of the Kingdom of Nepal* (Book the Fourth, Chapter II of the *Travel of Ippolito Desideri of Fisticia S. J.* (A. D. 1712—1727)—Broadway Travellers, London, 1932, pp. 313—314) we find a reference to the use of betel and pan in the following extract :—

"... Now by Nepalese law, persons living in the royal palace, even any who touched the walls with their hands, enjoyed the right of sanctuary and absolute immunity from any danger : nevertheless the Neuārs killed, almost in the presence of the prince, several foreigners and Muhammedans. Another time they sent a deadly poison wrapped in certain aromatic and tonic leaves much used in certain parts of India, where they are called betel,⁴ in Mogol their name is pan. The Muhammedans exposed the treachery and the king sent for a goat, which fell dead after eating a few leaves. The miscreants were punished, but far too leniently, with perpetual banishment. At last the successive rebellions of the Neuārs so afflicted the young and robust king, that he died of anxiety and worry."

3. According to Thomas Green⁵ "*Areca Catechu*" is "*a native of the East Indies and of Cochin-China*". This statement is in harmony with the antiquity of *Tambala* in Indo-China referred to by me already in this paper.

4. In the *History of Sumatra* by William Marsden (2nd Edition, London, 1784) we get an exhaustive account of the Betel-nut plantations and the custom of chewing betel-nut as current in Sumatra in the latter part of the 18th century. I give below the pertinent extracts which would enable the readers to understand fully the cultural back-ground of *Tambala* in Sumatra more than 160 years ago :—

Page 74 —Betel-nut and other vegetables of domestic life.

3. The history of *Tambala* in Ceylon needs to be reconstructed on the basis of Singhalese literary sources with which I am not familiar.

4. The history of *Tambala* in Nepal needs to be investigated. From Apolito's remarks it appears that *Tambala* may have been current at the court of Nepal prior to A. D. 1712.

5. Vide p. 118 of "*The Universal Herbal or Botanical, Medical and Agricultural Dictionary containing an account of all the known plants in the World*" by Thomas Green, Vol. 1 (Fisher, Son and Co. 1823; London, Paris, New York). See also Page 336 of Vol. II of this Herbal where *Areca Catechu* is described as "*Native of the East-Indies*".

"Of the *Penang* or Betel-nut tree, which in growth and appearance is not unlike the cocoanut, the natives make *large plantations*, as well as of the *Seree*, a creeping plant, whose leaf, of a strong aromatic flavour, they eat with betel-nut and other additions, a practice which I shall hereafter describe."

Page 127— "The *Penang* or Betel-nut, before mentioned, is a considerable article of traffic⁶ to the coast of Coromandel or *Telinga* particularly from *Acheen*."

Page 242— Custom of chewing Betel - Emblematic presents etc.

" Whether to blunt the edge of painful reflection or owing to an aversion our natures have from total inaction, most nations have been addicted to the practice of enjoying by mastication, or otherwise, the flavour of substances possessing an inebriating quality. The South Americans chew the *cocoa* and *mambee* and the Eastern people, the *betel* and *areca* or as they are called in the Malay language, *Seeree* and *penang*. This custom has been accurately described by various writers⁷ and therefore it is almost superfluous to say more on the subject, than that *Sumatrans* universally use it, carry the ingredients constantly about them and serve it to their guests on all occasions, the prince in a *gold stand* and the poor man in a *brass box* or *mat bag*.⁸ The *betel stands* of the better rank of people are usually of *silver*, embossed with *rude figures*. The *Sultan of Moco* was presented with one⁹ by the *India Company* with their arms on it; and he possesses besides another of *gold filagree*. The form of the stand is the frustum of an hexagonal pyramid reversed; about six or eight inches in diameter. It contains many smaller vessels, fitted to the angles for holding

6. Owing to the continuous commercial contact of India with Sumatra the traffic in betel-nut (*penang*) with South Indian ports must have been constant since the first contact of India with Sumatra and other islands in Southern Seas.

7. I propose to record in a special paper notices of *Tambala* in India by foreign observers.

8. In the Deccan the poor men addicted to *Tambala* carry with them a cloth wallet called "Collet" which contains pockets for keeping the betel-nuts, betel-leaves, tin boxes containing *chamam* and other ingredients, as also the nut-cracker. The wallet is rolled up and carried in a pocket of the jacket, shirt or coat.

9. If this silver stand could be traced now it would be worthy of being preserved in a museum. My friend Mr. D. G. Kelkar of Poona has collected a large number of nut-crackers, *chamam* boxes and betel stands of the 17th century and the 18th century from some parts of India. He should try to collect specimens of these items from Java, Sumatra, Indo-China etc., where *Tambala* has been current for hundreds of years as proved by this paper.

the nut-leaf and *chunam*, which is quicklime from *cacline shells*; with places for the instruments¹⁰ employed for cutting the first; (*cacheep*) and *spatulas* for spreading the last.

When the first salutation is over, which consists in bending the body and the inferior's putting his joined hands between those of his superior and then lifting them to his forehead, the betel is presented as a token of hospitality¹¹ and an act of politeness. To omit it on the one hand, or to reject it on the other, were an affront as it would be likewise in a person of the subordinate rank to address a great man, without the precaution of chewing it before he spoke. All the preparation consists in spreading on the *Seeree* leaf a small quantity of *Chunam* and folding it up with a slice of *pinang* nut. Some mix with these *gambeer*, which is a substance prepared from the leaves of a tree of that name by boiling their juices to a consistence and made up into little balls or square* (* A particular detail of the cultivation and manufacture of the *Gambeer* is given in the second volume of the trans. of the Batavia Society, I, i. 2). *Tobacco*¹² is likewise added, which is shred fine for the purpose, and carried between the lip and upper row of teeth. From the mastication of the first three proceeds a juice, which tinges the saliva of a bright red and which the leaf and nut without the *Chunam* will not yield. This hue¹³

10. Capt. Edward Moor (A. D. 1794) refers to the nut-cracker used in India in his *Narrative* etc. (vide my paper on *Indian Nut-cracker*).

11. Offering *Tambula* as a sign of hospitality is mentioned in the *Kamasutra* (N. S. Pruss, Bombay, 1900) p. 314—

“ताम्बूलानि सञ्चयेव.....
जागृत्याहृत्य शीत्या कृतामोक्षीय योऽयेत्॥”

and p. 239.—

“नायकमियाय। ताम्बूलदानैः पूजनं..... ।”

12. Asad Beg saw tobacco at Bijapur in A. D. 1604-1605 and introduced it to Akbar (vide p. 923 of *Hobson Johnson*, 1503).

13. Sanskrit literature is full of references to the hue or red colour imparted to the mouth by *tambula* etc.—will be seen from the following extracts :—
(*Bhāmaha* 2)—

“ताम्बूलरागवलयं षड् हृदयदीपिति ।
हृन्निशामनयनं तदेव वदनं त्वय ॥”

(See p. 88 of *Kavyadūrasa* ed. by R. Radai, B.S.S. 1938).
(*Śṭīyāra-Ulāka*)—

“रागो न स्वस्मितललासपुटे ताम्बूलसंचर्षितः ।”

being communicated to the mouth and lips is esteemed ornamental and an agreeable flavour is imparted to the breath. The juice is usually, though not always, swallowed by the chewers of betel. We might reasonably suppose that its active qualities would injure the coats of stomach but experience seems to disprove such a consequence. It is common to see the teeth of elderly persons stand loose in the gums, which is probably the effect of this custom, but I do not think that it affects the soundness of the teeth themselves. Children begin to chew betel very young and yet their teeth are always be utifully white, till pains are taken to disfigure them, by filing and staining them black. To persons who are not habituated to the composition, it causes a strong giddiness, astringes and excoriates the tongue and fauces and destroys for a time the faculty of taste. During the *poosao* or fast of *Ramzan* the Mahomedans among them abstain from the use of betel while the sun continues above the horizon, but, excepting at this season, it is the constant luxury of both sexes from an early period of childhood till, becoming toothless, they are reduced to the necessity of having the ingredients previously reduced to a paste for them, so that without further effort the betel may dissolve in the mouth. Along with the betel and generally in the *Chunam* is the mode of conveying philtres or love charms.¹⁴ How far they prove effectual I cannot take upon me to say, but suppose they are of the nature of our stimulant medicines, and that the direction of the passion is of course indiscriminate. The practice of administering poison in this manner is not followed in latter times but the idea is not so far eradicated as entirely to prevent suspicion, appears from this circumstance, that the guest though taking a leaf from the betel service of his entertainer not unfrequently applies it to his own *Chunam* and never omits to pass the former between his thumb and forefinger, in order to wipe off any extraneous matter. This mistrustful procedure is so common as not to give offence.

Tobacco :—Besides the mode mentioned before of enjoying the flavour of tobacco it is also smoked by the natives, and for this use, after

14. *Nagarasorvasa* (Ed. by Tripathi, Bombay, 1921, pp. 21-22) a work on erotics by *Padmariti* (c. A. D. 1000) describes five kinds of *Tambala* used in love affairs:—

“वाम्बलपिटकः पञ्च कीर्तिता नरपुङ्गवैः ।

कीदृशाङ्कुरवर्षपर्यङ्कचतुरस्रकाः ॥” etc.

shredding it fine, while green, and drying it well, it is rolled up in leaves of the *Neepah* tree (a species of palm) and it is in that form called *roko*. The *rokos* are carried in the *betel box* or more commonly under the *daytar* or handkerchief, which in imitation of turban surrounds the head. Much tobacco is likewise imported from China and sells at a high price. It seems to possess a greater pungency than Sumatran plant."

In the above account of *Tambala* in Sumatra in the latter part of the 18th century the oral use of tobacco along with *Tambala* is noteworthy. Such oral use of tobacco with *Tambala* is widely current at present in India.

5. The use of *Tambala* in Arabia at *Dhofar* at the extremity of Yemen is vouched by Batutta in his *Travels* (ed. By H. A. R. Gibb, London, 1929—Broadway Travellers). Batutta tells us that the inhabitants of *Dhofar* resemble the people of North-West Africa in their customs and that the cultivated "betel trees" by which he means the *betel vines* and used the leaf of these creepers along with *areca-nuts* and *chalk*. According to Gibb (Note 13 to Chap. III of *Travels*) *Dhofar* contains tropical vegetation and its population is not Arab but of Sudanic type.

Page 114 — "They (inhabitants of *Dhofar*) grow *betel trees* and *coco-palms* which are found only in India. They have no fruit and are grown only for their leaves. The Indians have a high opinion of *betel*, and if a man visits a friend and the latter gives him five leaves of it, you would think he had given him the world, especially if he is a prince or notable. A gift of *betel* is an honour far greater than that of gold or silver. It is used in this way. First one takes *areca nuts*, which are like nutmegs, crushes them into small bits and chews them, then the *betel leaves* are taken, a little *chalk* is put on them, and they are chewed with the *areca nuts*. They sweeten the breath and aid digestion, prevent the disagreeable effects of drinking water on the empty stomach and stimulate the faculties."

Page 110 — Batutta goes to Maqda Shaw (Mogdishu).

Page 111 — "The Sultan (of Mogdishu) whose name is Abu Bakr, is of Berberah origin, and he talks in Maqdishu language, though he knows Arabic. When we reached the palace and news of my arrival was sent in, a eunuch came out with a plate containing

betel leaves and *arecanuts*. He gave me ten leaves and a few nuts, the same to the *qadi* and the rest to my companions and the *qadi's* students and then said "Our master commands that he be lodged in the Students' house."

Page 241 — Batutta went to *Maldive islands*. At the island of *Mahal*, the seat of the Sultana and her husband, he was honoured. "They brought out *betel* and *rose-water* to us, this being their mark of honour." (p. 246). Batutta married the daughter of the Wazier Sulayman, who "gave his consent"¹⁵ and sent the customary *betel* and *sandalwood*" (p. 249).

Page 272 — Batutta at *Barahanakar* (probably *Arakan* in *Burma*). "This tribe is a rabble.....They live in reed huts roofed with grasses on the sea-shore and have abundant banana, *areca* and *betel trees*."

Page 273 — Batutta at *Jawa* (Sumatra).

"The commonest trees there are the coco-palm, *areca*, clove, Indian aloe, jack-tree, mango, jamun, sweet orange and camphor cane."

The foregoing references to the use of *Tambula* in *Arabia*, *Maldive Islands*, *Sumatra*, *Jawa*, *Burma* etc., in Batutta's *Travels* (A. D. 1325-1354) clearly prove the currency of the *Tambula* habit outside India in the first half of the 14th century.

6. The Italian traveller Tavernier in his *Travels* (Trans. by V. Ball, London, 1889. Vol. II) describes the use of *Tambula* by the King of *Bantam*, (situated at the western end of *Jawa*) as follows :—

Page 354—"On his right side there was an old black woman who held in her hand a small mortar and a pestle of gold in which she crushed the *betel leaves* with which she mixed *arecanuts*¹⁶ and dissolved seed pearls. When she saw that the whole was well pounded she placed her hands on the King's back who at once opened his mouth and she put the *betel* in with her fingers as women do who give pap to their infants¹⁷ because the king had

15. The *Smṛtyarthasara* of S'ridhara (A. D. 1150-1200) also refers to the practice of effecting a marriage by giving *Tambula* alone as a sign of consent :—

"अपमैषु (v. l. आमुषादि) विवाहेषु ताम्बूलमुपदेनम् ।"

(p. 17 of Anandasrama Ed. Poona, 1912)

16. "Arugue in the original"—Editor.

17. "I recently saw the famous hairy woman of Mandalay being supplied with *betel* by her Burmese attendant in much the same way ; being blind the packet had to be prepared for her and placed in the mouth"—Editor.

no teeth; for he had eaten so much tobacco that his teeth had fallen out."

The above extract proves the use of *Tambala* in Java in the middle of the 17th century.

7. The Italian traveller Manucci in his *Storia do Mogor* (or *Mogul India*) Trans. by William Irvine, London, 1918 (John Murray, 4 vols.) makes mention of *betel leaves* sent to the Indian envoy while in Persia and further observes that these leaves were not available in Persia as will be seen from the following extract :—

Vol. II, p. 128—"The ambassador (sent to Persia by Aurangzeb) arranged matters so that on his arrival in *Isfahan* he received there *fresh betel*, a leaf that on mastication gives an agreeable odour to the stomach. I spoke of it in the First part of my History (I, 39) upon my arrival in *Surat*. They have none of this leaf in Persia."

It is noteworthy how Aurangzeb's Muslim ambassador, addicted to *Tambala* in India, arranged for its supply in Persia, where it was not current in his time as expressly stated by Manucci. It is curious that the betel leaves which were cultivated in Yemen and chewed by the Arabs in the middle of the 14th century should not be current in Persia in the middle of the 17th century.

8. The Chinese traveller I-tsing in his *Travels* (or a Record of the Buddhist Religion as practised in India and Malay Archipelago)—(A.D. 671—695) Trans by Takakusu, Oxford, 1896—refers to the use of *betel-nut* in the ten islands of the Southern Sea and the betel-nut forest in the country of the Naked people (Nicobar island) in the following extracts :—

Page XXX (General Introduction)—"I sailed to Eastern India. Going towards the North from *Ka-Cha* after more than ten days sail we came to the country of the Naked people (*Insulae Nudorum*). Looking towards the east we saw the shore for an extent of one or two Chinese miles with nothing but cocoa-nut trees and betel-nut forest, luxuriant and pleasant."

Page 45 — Rules about *Upavasatha* day.

"In the ten islands of the Southern Sea....."

Then the priests are laid outside the house to wash their hands and rinse their mouths and after this *sugar-water* and *Pin-lang*¹⁸

18. "It is called *Pin-lang*, from the Malay *Pinang*, which is the fruit of *Areca Catechu* Sanskrit *Paga*"—Editor.

(i.e., betel nuts) are offered to them in sufficient quantities, then they withdraw from the house.

'On the first day the host prepares a *Pin-lang* nut, fragrant oil"¹⁹ prepared from *mustaka* and a small quantity of crushed rice placed on a leaf in a plate etc."

Page 48 — "After the priests have finished eating...Next some *Pin-lang* fruit (betel nuts) and *nutmegs* mixed with cloves and *Baros Camphor*²⁰ are distributed. In eating these they get the mouth fragrant, the food digested and the phlegm removed. These fragrant medicinal things and the others are given to the Priests after they have been washed with pure water and rapped in leaves."

In the foregoing scanty notes I have tried to record documentary evidence about the use of *Tambula* outside India from c. A.D. 650 onwards in Sumatra, Java, Maldive Islands, Nicobar Islands, South Arabia etc. This evidence is in harmony with the view of MM. Dr. P.V. Kane in his *History of Dharmasāstra* (B.O.R. Inst., Poona, 1941) Vol. II, p. 734:— "*Tambala* was probably introduced sometime before or about the beginning of the Christian era in South India and then spread northwards."

Dr. Kane states that *Tambula* is not mentioned in ancient *Gṛhyasūtras* (p.734), though there are references to *Tambala* in *Laghuhārta Laghuśvalāyana*, *Varāhamihira*, *Aśanasa*, *Raghuvamśa*, (VI. 64) *Kāmasūtra* 1.4.16, etc. (p. 734).

19. The use of fragrant oil in serving the guests after *tambula* is given to them after dinner is very common in *Mahārāṣṭra* today. The currency of this custom in the islands of the Southern Sea in the 7th century A. D. is note worthy.

20. The use of camphor in *Tambula* is mentioned in the drama *Mṛcchakaṭika* (ed. by H. M. Sastri, N. S. Press, Bombay 1910):—

Page 105 (Act IV)—

"विष्पकः—दीयते गरुडिकाकामुकयोः कर्पूरं ताम्बूलम् ।"

The *Nandipurāṇa* refers to camphor-boxes and *Tambula* boxes:—

"कर्पूरादिषु भाण्डानि ताम्बूलायतनं तथा ।"

See 1547 of the *Nirṇayasindhu*, Chowkhamba Series, Benares, 1897, where *Nandipurāṇa* is quoted).

The *Saundaryalaharī* of Śaṅkarācārya (c. A. D. 800) (ed. Adyar, 1937, p. 198) refers to *Tambula* and camphor (*karpūra*) as follows:—

"निशासिन्धोपेन्द्रैः शयिनिशदकपुष्पकला

विहीयन्ते मातस्तव वदनताम्बूलकवलाः ॥"

(V. 65).

My friend Dr. V. S. Agrawala thinks that "*Tambāla* came into vogue somewhere about the early Gupta period. As a result of India's cultural contact with the Eastern Islands²¹ we came to be acquainted with the *Tambōla*leaf."

These remarks also get supported by the evidence collected by me so far.

21. The first colonisation of the Hindus in Malaysia goes back to the 1st or 2nd century A. D. and reaches its high water mark of glory and splendour towards the end of the 7th century A. D. (vide p. 138 of Vol. II of R. C. Majumdar's *Swarnpadolpa*, Dacca, 1937). Speaking of the Hindu civilisation in *Swarnpadolpa* during this period of 500/600 years, Dr. Majumdar refers to the use of betel as a custom of *Ka-la* (Kedah) :—

"The following customs of *Ka-la* referred to by the Chinese are also Indian in origin (See page 122 of *Notes on Malay Archipelago and Malacca compiled from Chinese Sources* by W. P. Groeneveldt, V. B. G Vol. XXXIX, Part I (Batavia, 1877). When they marry they give no other presents than *arecanuts* sometimes as many as two hundred trays" etc.

15. The Attitude of Hindu Dharmaśāstra towards Tambula-Bhoga (Enjoyment of Betel)*

Having published several papers on the history of *tambula* (betel-chewing) in India I developed a desire to study the attitude of Hindu religion towards this gay habit of betel-chewing now current in several parts of India. As a result of my study I have collected some evidence bearing on this attitude. This evidence shows clearly that *tambula* was recognised as an object of enjoyment for a lay person but its use was forbidden in the case of persons who adopted a religious mode of life or observed certain religious vows as a permanent or temporary measure.

According to a verse¹ quoted by the celebrated Gāgabhaṭṭa (c. A. D. 1620-1685) *tambula* is one of the eight *bhogas* (objects of enjoyment) viz. (1) perfumes, (2) woman, (3) clothes, (4) music, (5) *tambula*, (6) dinner, (7) bed, (8) flowers. That *tambula* is a *bhoga* (object of enjoyment) was recognised hundreds of years before Gāgabhaṭṭa. In the encyclopaedic work *Manasollāsa* composed by the Calukya King Somēśvara about A. D. 1130 we get regular chapters on the different *bhogas* mentioned in the verse about eight *bhogas* quoted by Gāgabhaṭṭa. These chapters are as follows :—

(1) *Vilepanabhoga* (pp. 85-87 of *Manasollāsa*. Vol. II (1939—G. O. Series. Baroda) deals with *vilepanas* or unguents to be used by the King for different seasons. The *vilepana* called *Sandhya* removes the smell of

* *Journal of Oriental Institute* (Baroda), March, 1952, pp. 270-277.

1. This verse reads as follows :—

“सुगंधवनितावरं गीतताम्रलोचनम् ।
शरदा च कुसुमं चैव भोगाश्चमुदाहृतम् ॥”

(vide page 3 of *Kaṣṭhādharmaśāstra* by Gāgabhaṭṭa—Appendix A to “*तख्तवाली* कान्हाली” published by K. T. Gupte, Poona, 1919)

Gāgabhaṭṭa refers to the *Tambull* Caste in the following extracts :—

Page 9 — “ स हीनः शुद्धपद्मेयः पर्ववल्लीविधायकः ।
ताम्रलवल्लीसंभृतं द्रव्यं तस्यैव जीवनम् ॥
अयमनुलोमस्ताम्रली इति सप्तदेशभाषाप्रसिद्धः ।”

Pages 25 — “ कविनात् शद्रकन्यायाः सुमो नाम प्रजायते ।
मेवादिविकपश्चात्स इतिस्ताम्रलविधयः ॥”

perspiration. The *lepana* called *pullinga* is prescribed for the cold season (*Hemanta* and *Sitira*). The colour of the *vilepana* should harmonise with the dress, which was changed according to seasons.

2. *Dhāpabhoga* (Pages 144-145) deals with the ingredients of different *dhāpas* (incenses) such as (1) *Cārnadhāpa*, (2) *Piṇḍadhāpa*, and (3) *Vartidhāpa*, which was placed before the King and queens and also kept before the *Saris* of the queens or their hair. Different kinds of incense-holders of gold or silver, with many holes and of the sizes of birds or beasts are mentioned in this chapter.

These two chapters (*Vilepanabhoga* and *Dhāpabhoga*) correspond to the *Sugandhabhoga* of the verse about 8 *bhogas* mentioned above.

3. *Yośidbhoga* (pages 145-154) deals with the enjoyment of women. It mentions the qualification of women, whom a King should marry.

This chapter corresponds to *vanitabhoga* of the verse about 8 *bhogas*.

4. *Vastropabhoga* (pages 88-90) deals with the enjoyment of garments. The King should consider auspicious and inauspicious moments for putting on new dress. After applying the *vilepana* to the body the King should call the officer-in-charge of the royal ward-robe and order him to bring excellent clothes of cotton or silk, woven with silver or golden threads of various kinds and colours brought from different countries and wear them. The scheme of clothes recommended for different seasons is as follows :—

- (1) *Spring* :—Thin and charming silk or cotton clothes.
- (2) *Summer* :—Clothes of white colour. If woolen clothes are worn in summer they should be white, thin, soft and beautiful.
- (3) *Rainy Season* :—Red, pink, reddish and dark-red clothes made in an attractive style.
- (4) *Autumn* :—Thin clothes dyed with Safflower or lac.
- (5) *Cold Season*.—Woolen clothes of various kinds

The clothes worn by the King should suit his own complexion.

5. *Saṅgita-vinoda* :— This chapter on music forms part of the third and last volume of the *Mānasollāsa*. It is the longest chapter as the author had the greatest interest in the art and science of music. This chapter corresponds to the *Gitabhoga* of the verse about 8 *bhogas*.

6. *Tambalabhoga* (pp. 83-85 of Vol. II of *Mānasollāsa*) describes the use of *tāmbala* by the King. Betel-nuts for this purpose are to be obtained by the officer-in-charge of *tāmbala* from places like Vanavāsa. Slices

from the tops of these nuts are removed and then they are dried in the shade. One-fourth of a nut is used in preparing *tambala* for the royal use. This *tambala* consists of 52 yellowish betel-leaves with their ends removed and other ingredients, like pearl-oyster, *Ṭṣavasa* camphor, *Kastūri* (musk) and other sweet-smelling things.

This chapter corresponds to the *tambalabhoga* of the verse about 8 *bhogas*.

7. *Sāyabhoga* (pp. 142-144) deals with seven kinds of royal beds, and eight kinds of bed-steads. *Toṣasāyā* (water-bed) to be used in summer was made of leather with water inside. *Hamsajāsāyā* was a bed prepared from the feathers of *Hamsa* and used in the spring. A bed of flowers and tender foliage was made for temporary enjoyment. Cotton-bed was to be used in hot season and water-bed at noon time. In Hemanta, Śifira and rainy season also cotton bed was used. In the autumn the King is advised to use *Dolamañca* or swinging bed with lotus-filaments inside for the sake of enjoyment.

This chapter corresponds to the *Sāyabhoga* of the verse about 8 *bhogas*.

8. *Annabhoga* (pp. 115-136) deals in detail with the vegetarian and non-vegetarian articles of food and the methods of preparing several dishes suitable for different seasons. This chapter has a definite place in the history of Indian diet when it comes to be written.

This chapter corresponds to *Bhojanabhoga* of the verse about 8 *bhogas*.

9. *Malyopabhoga* (pp. 90-91) deals with the enjoyment of garlands of flowers by the King. These flowers were to be gathered from trees and creepers. Their names are :— *Campaka*, *Mallika*, *Utpala*, *Paṭala*, *Bakula*, *Surabhī*, *Karavīra*, *Śatapatra*, *Malati*, *Yātri*, *Varnapuṣpa*, *Iruvati*, *Neyālī*, etc. Some of these flowers were used for preparing perfumed oil in ancient India as they are used today by Indian perfumers. Floral perfumes are appreciated more in India than the synthetic foreign perfumes sold in the Indian market.

This chapter corresponds to the *Kusumabhoga* of the verse about 8 *bhogas* quoted by Gaṅgabhāṭṭa.

A glance at the contents of the *Manasollāsa*, a veritable cultural encyclopædia of the 12th century, will convince any one that Indians of ancient and mediæval times had interest *par excellence* in material cultural advancement as much as they had in spiritual development, which was of

course the coping stone of Indian Civilization. It is no wonder, therefore, that the habit of using *tāmbūla*, which the Indian Āryans acquired about 2000 years ago from the people of South Sea islands, acquired the status of a *bhoga* (object of enjoyment) in the Indian scheme of *bhogas* (material enjoyment) normally allowed to a house-holder (*grhastha*) according to Hindu *dharmaśāstra*.

The use of *tāmbūla* was forbidden in the case of a *yati* (ascetic) and it would be improper to depict in literature a *yati* chewing *tāmbūla*. Jagannātha Paṇḍitarāja, the protégé of Shah Jahan (A.D. 1628-1658) in his treatise on poetics called the *Rusakaṅgaḍhara* (N. S. Press, Bombay, page 51) illustrates *anaucitya* (impropriety) in literature. The study of *nigama* (Veda) by a Śūdra, possession of a wife by a *brahmacārin* (student) and chewing of *tāmbūla* by a *yati*—all these are cases of *anaucitya* ("गृहस्थमिगमाध्ययनम् । ब्रह्मचारिणो वस्त्रेण ताम्बूलचर्चणम् । दागोपसंभ्रमः...").

According to *Sivapurāṇa* (Section on *brahmacarya*) quoted in the *Prastāsisamgraha* by K. Bhujabali Shastri (*Jain Antiquary*, Vol. VI, No. 2, June 1940) a student (*brahmacārin*) is prohibited to use a comfortable seat and bed and garment, *tāmbūla*, decoration after bath, tooth-stick, perfumes, etc. (page 169—"सुखशय्यासनं वस्त्रं ताम्बूलं स्नानमण्डनम् । दन्तकाष्ठं सुगन्धं च ब्रह्मचर्यस्य कृणुम् ॥"). Evidently a student is to lead a life of hard discipline and concentrate only on his studies. No luxury was allowed to him. "Plain living and high thinking" must be his motto.

According to *Agnipurāṇa* (Chapter 175, folio 123 of Venkateśwar Press Edition, Bombay) a person observing *upavāsa* (religious fast) is forbidden to use *tāmbūla*. He should not drink water repeatedly and indulge in sleep by day and sexual intercourse ("असक्तुन्नलपानाय ताम्बूलस्य च भक्षणात् । उपवसः प्रवृत्त्यै दिवाप्यप्राणं मृदुनात् ॥"). Even today persons observing *upavāsa* do not use *supari* (betel nut).

Haribhāṣaka Agnihoṭṛī (c. A.D. 1675) has recorded some observations on the use of *tāmbūla* in his work on *Dharmaśāstra* called the *Smytirakāśa* (MS No. 161 of Vid. I in the Government MSS library at the B. O. R. Institute, Poona). He quotes in this connection *Markandēya-purāṇa*, *Jyotiribandha*, and authors of some *Smytis* like *Vasiṣṭha* and *Āśvalāyana*. According to *Āśvalāyana* a person desirous of study should not use *tāmbūla* frequently by night. Excessive use of *tāmbūla* leads to paleness, weakness of teeth, diseases of the eye and mouth, and loss of vigour. ("विप्राकाशप्रदं रात्री ताम्बूलं न ह्यभवेत् । तथा—पाण्डुरत्वं दंतदोषस्त्वक्षिरोगं वल्लभम् । करोति दुस्स्रोतांश्च ताम्बूलमतिसेवनात् ॥"). According to *Vasiṣṭha* the use of any ingredient of *tāmbūla* singly or in combination (i.e. betel nut, betel leaf

etc.) by an ascetic, a student, a widow, and a woman in menses is tantamount to the use of flesh and wine which is prohibited by *dharmaśāstra* "यतिश्च ब्रह्मचारी च विधवा च रजस्वला । अयेकं मांसमुल्लं श्यामेलेन भुरया हम् ॥ इति" Haribhāskara explains "ऋगुक्तादेः प्रदेकं भक्ष्यं मासमुदितं सुया समानम् इत्यर्थः")

According to *Itihasopaniṣad* (Sādha's *Upaniṣadvākyakośa*, Vol. I, 1940, page 290) a person who offers funeral oblations to his ancestors on specific days should avoid the use of tooth-stick, and *tāmbāla*. He should not shave, anoint his body with oil and take food in his own house or in another person's house. He should not use any medicine likely to simulate sexual tendencies

("दन्तपावनताम्बूलं क्षौराभ्यङ्गनभोजनम् । रथीपथं पराङ्गं च आदकृतां विजयेत्"—इतिहा ४०)

Lakṣmaṇabhaṭṭa (between A. D. 1580 and 1640 according to Dr. P. V. Kane) has quoted some authors and works in his observations on *tāmbāla* in the Section called *bhojanakirāṇa* of his work "*Ācāraratna* (MS in the Limaye Collection, B. O. R. Institute, Poona). These works and authors are :—(1) मार्कण्डेयः, (2) माधवीये वसिष्ठः, (3) मदनान्ते वसिष्ठः, (4) आश्वलायन (5) कृष्णभट्टीय, (6) हेमाद्रौ जाबालिः, (7) बृहन्नारदीय, (8) विष्णुहर्ष, (9) ६४, (10) आशुर्वेद (see folio 1656 of the MS). According to *Jabali* quoted by Hemādri (c. A. D. 1260) *tāmbāla* is forbidden for one who performs *Śrāddha* (funeral oblations) in the following verse which is identical with the verse quoted above from *Itihasopaniṣad* :—

"दन्तपावनताम्बूलं क्षौराभ्यङ्गम (जन ?) भोजनम् ।

रथीपथि पराङ्गं च आदकृत्स व्रजेयेत् ॥"

According to *Āśvalāyana* quoted in the *Ācāraratna tāmbāla* is forbidden to (1) an ascetic, (2) a widow, (3) a *dikṣita* (one initiated for a religious ceremony) and (4) a *baṭu* (a young *brahmachārin*).

*Maithuna*¹ (Sexual intercourse) is specially forbidden in the case of these persons. A person desiring to study should not chew *tāmbāla* frequently by night. The pertinent lines are :—

"यतेश्च विधवायाश्च दीक्षितस्य शठोरपि ।

ताम्बूलभक्षणं वर्ज्यं मेधुनं च विरोधतः ॥

विद्याकामोऽनिशं रात्रौ ताम्बूलं न तु भक्षयेत् ॥"

1. Verthema (in his *Travels* (Itinerary), Argonaut Press, London, 1928, p. 56. [A.D. 1502-1508] makes some remarks about the King of Calicut. When a near relative of the King died, "As an act of devotion the King does not sleep with a woman or eat betel for a whole year."

(See the lines from *Āśvalayana* quoted by Haribhaskara Agnihotri referred to by me above).

According to *Kṛṣṇabhāṣya* quoted in the *Ācāraratna* there is no objection to the chewing of *tāmbūla* by a person performing three kinds of *Śrāddha* viz. (1) *nitya-śrāddha* (daily and necessary *Śrāddha*), (2) *ama śrāddha* (*Śrāddha* performed on the new-moon day, and (3) *apara-nakṣika-Śrāddha* (*Śrāddha* performed in the second or dark half of the month). This is the view expressed by *Sātatapa* ("नित्यभादे रमाभादे भादे चाप्यपक्षिणे । ताम्बूलचर्वणे दीपो नेति शातासप्तोऽनवीत् ।").

According to *Bṛhannāradya* quoted in the *Ācāraratna* a person of great renown (*mahāyasa*) should avoid the use of perfumes, *tāmbūla* and flowers for three days commencing with *daśami* (10th day of a lunar fortnight). He should also avoid sexual intercourse during these days, ("शरादादि महीपाल त्रिदिनं परिबर्जयेत् । गन्धताम्बूलपुष्पाणि स्त्रीसंभोगं मदावशाः ॥")

According to *Viṣṇurāhasya* quoted in the *Ācāraratna* a person observing a *vrata* (a religious vow) should entirely avoid the use of *tāmbūla* and the use of oily substances for besmearing the head or other parts of the body, as also the use of unguents for the body ("गार्ग्यं गिरौष्मं ताम्बूलं चानुलेपनम् । मत्तयो बर्जयेत्सर्वं यन्चान्यत्र निराकृते ॥")

The attitude of the Hindu *dharmaśāstra* towards the use of *tāmbūla* will be sufficiently clear from the evidence of texts quoted above. This evidence can be supplemented by observations on *tāmbūla* from the numerous texts on *dharmaśāstra*. I hope some close study of these observations will be carried out by experts in this field before long. For the present I close this paper by recording some references to the use of *tāmbūla* in a work on *dharmaśāstra* called the *Smytyarthasāra* by Śrīdhara, who flourished between A. D. 1150 and 1200 according to Dr. P. V. Kane. This work has been published in the *Anandaśrama Sanskrit series* No. 70, Poona, 1912. The following references are taken from this edition :-

(1) Page 6 — Rules about the conduct of a Brahmacārin are mentioned in the following extract :-

'उपासमानं सर्वेषां वेदाभ्यस्तम् । तत्र स्त्रीमधुमात्रेऽपि दृश्युकर्पणपितृताम्बुल-
दन्तचर्वनफलविषादिभक्ष्यपच्यप्रादुकागन्धमाह्वयवर्तनानुलेपनाऽन्नबलश्रीडा गृहद्वन्द्वगीतवाद्यालाप-
परिवादो दीप्त्यभ्यासवर्तनाऽवर्जयेत् ।'

During the period of study a student should avoid women, *tāmbūla*, sleep by day, perfumes, unguents, sporting in water, gambling, dancing,

vocal or instrumental music, slander, stale and used food, umbrella, sandals, tooth-stick, cloth girt round legs and knees while in a sitting posture, etc.

Evidently the above extract enjoins the student to be very serious and stoic during the period of his study. No modern student would like to undergo such stoic discipline.

Page 17 — Writing about *vivaha* (marriage) Śrīdhara says that in the case of marriage of the *āsura* type the offering of betel is sufficient to effect the marriage ("आहुतादिनिवादेपु ताम्बूलमनुमोदनम्").

Page 48 — In his remarks on *pitryajña* (offering libations of water daily to ancestors) Śrīdhara states that one can perform all acts connected with this *yajña* such as bath, gifts etc. even after chewing *tambāla* and drinking water, milk and medicine, as also after eating sugar-cane, fruits and roots ("इत्थं नयः फलं मूलं ताम्बूलं पय आशयम् । मत्तद्विवादापि कर्तव्याः स्नानदानादिकाः क्रियाः ॥").

Page 55 — Among things to be offered to the *piṇḍas* (rice-balls) for the Manes of ancestors Śrīdhara includes *tambāla*, flowers, incense perfume, etc. ("ततः पिण्डेभ्यो अक्षत-गन्ध-पुष्प-शुप-दीप-वस्त्र-ताम्बूलानि दत्वा etc."

Page 70 — In his remarks on *śayana-vidhi* (use of bed by a householder) Śrīdhara says that the householder should go to bed with his wife after enjoying perfumes and *tambāla* ("ततः स्वरिचया सह सुगन्धलेपनताम्बूलादि सेवमानः स्वपेत्").

It would be seen from the above extracts that the use of *tambāla* was allowed to a householder whose life was given to *bhoga* (material enjoyment) within certain limits. There was no laxity, however, in the rules for the life of the *brahmacārin* (unmarried students) which was designed to be austere in every respect, free from the temptations for material enjoyment including the use of *tambāla*.

Page 65 — In his remarks about the rules to be followed by a person observing the *Ekādaśī* fast (i. e. the religious fast on the 11th day of a fortnight of a lunar month) Śrīdhara states that such a person should avoid (1) sleep by day, (2) sexual intercourse, (3) *tambāla*, (4) frequent drinking of water, (5) speaking with persons of low castes etc.

("दिवास्वापं त्रेयुनं ताम्बूलादिभक्ष्यम् असङ्ख्यजलपानं, शीतजालिसंभाषणं च वर्जयेत्")

The evidence recorded in this paper gives a fair idea about the attitude of the Hindu *dharmasāstra* towards *tambūlabhoga* (enjoyment of *tambūla*). This evidence can be further clarified by observations on *tambūla* from other texts on *dharmasāstra* early or late. Some of the late works like the *Nirṇayasindhu* (A. D. 1612) by Kamaṣkarabhaṭṭa quote many early authorities with regard to the use of *tambūla*. These quotations need to be traced to their sources with a view to studying the attitude of the Hindu *dharmasāstra* towards *tambūla* in its domestic, social and religious perspective. Topics like the use of *tambūla* in religious worship as also the gift of *tambūla* and *dakṣiṇā* to Brahmins need to be studied historically.

16. Studies in the History of Tāmbūla : Some Beliefs about the Number of Ingredients in a Tāmbūla.*

I have so far published a few papers on different topics connected with the history of *Tāmbūla*, such as (1) the history of the Indian Nut-Cracker,¹ (2) the history of *Tāmbūla* outside India,² (3) the Antiquity of the use of *Chunam* and *Catechu* in *Tāmbūla*,³ etc. As a result of the interest created by these studies I have received several queries from my friends. One of these friends has asked me to record some evidence about the number of *betel-leaves* used in a *tāmbūla* and the beliefs associated with such use. I propose in this paper to satisfy the curiosity of my friend by recording the following notes bearing on the topic suggested by him :—

(1) At present it is customary in *Mahārāṣṭra* to use two *betel-leaves* at all *Pan-Supāri* ceremonies on the occasions of marriages, *mūḃja* ceremonies, social functions, religious festivals, etc. It is worthwhile investigating if the use of two *betel-leaves* (with a *betel-nut* or its cuttings) is customary in other provinces of India in the North and the South. Such regional study would be highly entertaining to the students of Indian Culture and Sociology.

(2) A work on *Dharmaśāstra* called the *Jyotiribandha*,⁴ which is earlier than A. D. 1524, contains 24 stanzas⁵ dealing with *tāmbūla*. The contents of these stanzas, being of great cultural value, may be briefly indicated below :—

Stanzas 1 & 2 —The auspicious time for chewing *tāmbūla* is explained in detail according to astrological beliefs.

**Journal of the University of Gauhati*, Vol II, No. 1, pp. 73-78.

1. *Bharata Itihāsa Maṇḍala Quarterly*, (Poona, 1948), pages 6-14.

2. *Journal of the Trivandrum University Manuscript Library*, (Trivandrum).

3. *Asiatic Society, Bombay—Sardhasvabhāvi Commemoration Volume*, Bombay, 1957.

4. *Jyotiribandha* by Ś'ivargja, (Anandashram Sanskrit Series, No. 85), edited by R. S. Vaidya, Anandashrama, Poona, 1919).

5. *Ibid.*, p. 235, "Atha Tāmbūlam—Hastatraye Dvividbandhe.....Sarcada Budhah"

According to S. B. Dikṣita (*History of Indian Astronomy* in Marathi, Poona, 1906, p. 476), the author of *Jyotiribandha* is Ś'ivādasa. This work is mentioned in *Vāmbāra's* commentary on *Vedhaśūfula*. It is, therefore, earlier than *sukha* 1446 (A. D. 1524). Dikṣita describes this work as "*Dharmaśāstrapara-mūhūrti-grantha*", dealing with auspicious times according to *Dharmaśāstra*.

Stanza 3 —A mouth devoid of the Veda, the juice of *tambala* and witty sayings is said to be a mere hole (*bila*).

Stanza 4 —One should chew *tambala* oneself after giving a *tambala* to the best of Brahmins. Such *tambala* should be made of good nuts, good leaves and *chunam*.

Stanza 5 —A man who makes a gift of a good *tambala*, especially to a Brahmin, becomes as beautiful as the God of Love and attains freedom from disease.

Stanza 6 —The gift of *tambala* is ever-lasting (in merit). The *betel nut* pleases God Brahmā, the *betel-leaves* please God Viṣṇu and the *chunam* pleases God Śiva (Śiva).

Stanza 7 —*Tambala* being of the nature of Brahmā, Viṣṇu and Śiva, brings prosperity and good fortune. Let all our desires be fulfilled by making a gift of *tambala*.

Stanza 8 —A *tambala* with one nut is the best, that with two nuts bears no fruit, while that with three nuts is exceedingly best. The use of *tambala* with more than three nuts, has not been noticed.

Stanza 9 —A *tambala* with thirty-two *betel leaves* should be given to the king. It is laid down that a *tambala* to be offered to a tributary prince should contain twenty-four *betel-leaves*.

Stanza 10 —A *tambala* to be given especially to a son-in-law should contain eighteen *betel-leaves*. A learned man should be given a *tambala* with twelve *betel-leaves* while a bride should be given a *tambala* with ten *betel-leaves*.

Stanza 11 —To all others a *tambala* of eight *betel-leaves* should be given. The *tambala* to be given to ordinary persons should be of four *betel-leaves* only.

Stanza 12-13 —A *tambala* to be given to enemies in particular should contain six *betel-leaves* only. A gift of *betel-nuts* bears fruit in the following order :—

One *betel-nut* —Profit

Two *betel-nuts* —Loss

1. Vide *Diary of Peshwa Bajirao II*, (ed. by Ld., 1908), p. 43—Among entries about the menu at the festival in honour of Gode Gajapati and Veṅkaṭeśa we find the following entry about a *tambala* with ten *betel-leaves* :—A. D. 1807-1808—"Kulapī Viḍa consisting of 10 ripe *betel leaves*, 2 clove, 2 cardamoms, 2 catechu pills, *chunam* and *betel-nut* as usual" (Trans. of Marathi extracts).

Three betel-nuts —Pleasure or Happiness

Four betel-nuts —Pain or Misery

Five betel-nuts —Long Life

Six betel-nuts —Death

The stem of a betel-leaf is associated with disease, while the end of the leaf is associated with sin.

Stanza 14 —The betel-leaf, which is crumpled, destroys human life, while the veins of the leaf destroy intellect. The roll of a *tambāla* should be held with its point in an upward position. A single betel-leaf should also be held with its end up.

Stanzas 15-16 —Chewing a *tambāla* with *chunam* applied to it with one's thumb brings wealth. The eating of the end and stem of a betel-leaf, as also two betel-leaves with *chunam* and the eating of a betel-nut without putting a betel-leaf in the mouth produce poverty for seven births and prevent the realisation of God Viṣṇu after death.

Stanza 17 —One should not chew *tambāla* without taking *chunam* with one's fore-finger; if one does so out of ignorance, one goes to the *Rauravahell*.

Stanza 18 —Sorrow, loss, death, want of prosperity and long life are associated respectively with the little finger, the ring-finger, the middle finger, the fore-finger and the thumb.

Stanza 19 —If one chews *tambāla* by taking it with his left hand or from the hand of a woman out of ignorance, his wealth comes to an end.

Stanza 20 —The application of *chunam* with the thumb contributes to success in all directions as it undoubtedly leads to victory, acquisition of a woman and garment.

Stanza 21 —The chewing of *tambāla* with the essence of catechu by day is quite becoming. The use of catechu for the same purpose at night will destroy the glory of even God Indra.

Stanza 22 —The thirteen qualities¹ of *tambāla*, which are unobtainable even in heaven, are its pungency, bitterness, heat, sweetness, saltiness, astringent flavour, capacity to remove *vāta* (wind as one of the three humours of the body), its antiseptic character, its capacity to remove phlegm, its capacity to stimulate passion and its capacity to lend beauty to the mouth, to purify it and to remove all bad odour from it.

1. See my paper on the history of the belief about the 13 qualities of *tambāla* in which I have traced the history of this belief up to A. D. 1200.

Stanza 23—One, who chews *tāmbūla* with preponderance of *betel-nut*, in the morning, preponderance of *chunam* at midday and preponderance of *betel-leaves* at night, attains increasing prosperity.

Stanza 24—A wise man should always use three parts of *betel-nut*, two parts of *betel-leaf* and one part of catechu (in the preparation of *tāmbūla*).

The foregoing verses are important for the history of *tāmbūla* as they are a detailed record of the beliefs about the use of the different ingredients of *tāmbūla* and the medical properties attached to them. It is possible to trace some of these beliefs in sources earlier than A. D. 1524, which is the later limit to the date of *Jyotir nibandha*. As regards the history of the number of each of these ingredients and the beliefs associated with it as given in the above verses, the following table may be recorded to enable scholars to reconstruct such history from sources earlier or later than A. D. 1524 :—

Ingredient of Tāmbūla	Number	Remarks
Betel-nut	1	Best
"	2	Bears no fruit
"	3	Exceedingly best
Betel-leaves	32	For the king
"	24	For a tributary prince
"	18	For sen-i-a law
"	12	For a learned man
"	10	For a bride
"	8	For all (respectable) persons
"	4	For ordinary persons
"	6	For enemies
Betel-nut	—	For enemies
"	2	Bears fruit
"	3	Brings loss
"	1	Produces happiness
"	4	Causes pain or misery
"	5	Brings long life
"	6	Causes death
Best Tāmbūla	Nut—3 parts Leaf—2 parts Catechu—1 part and Chunam, etc.	Produces the following qualities :— (1) Pungency. (2) bitterness. (3) heat, (4) sweetness, (5) saltiness, (6) astringency. (7) power to remove <i>śula</i> . (8) antiseptic character, (9) power to remove phlegm. (10) power to excite passion. (11) power to beautify the mouth. (12) power to purify the mouth. (13) power to remove all bad odour from the mouth.

(3) A *tambāla* with 32 betel-leaves prescribed for the king in the *Jyotiribandha* is referred to in a Marathi folk song, in which God Kṛṣṇa is described as sporting among 16000 women with a *tambāla* of 32 betel-leaves in his mouth as follows :—

Soḷasahasra nārī Kṛṣṇa ghalito dhiṅgaṇa, |
Battis-panāca viḍa mukhata rangana ||

(Vide p. 16 of *Muharaṣṭra Sahitya Patrika*, Poona, July 1941—article on *Janapada Oṃ* by Anasūya Bhagavat). Verily *Tambāla* has been a gay associate of gods and men in India for about 2000 years.

(4) The medical treatise *Aṣṭāṅga-Saṃgraha* by Vagbhata (c.A.D. 625 or about A.D. 850) prescribes the use of *tambāla* after getting up from sleep, after meals, after bath, after vomiting, etc. This *tambāla* should consist of 2 betel-leaves, one betel-nut, chunam and catechu. Vide p. 15 of *Satrasathana*, ed. by R. D. Kinjavadekar, Poona, 1940, Chap. III, verses 37-38 :—

"Pathyam suptotthite bhukte snate vānte ca mānave || 37 |
*Dvipatramekam pāgam ca sacūrṇa khadiram ca tat"*¹

(5) In the *History of Śuklayajurvediya Brahmanas* (in Marathi by N. V. Vaidya Purandare, Bombay, 1884) there are several appendices recorded as sources of evidence. One of these appendices marked "ū" is a *Persian farman* dated Hijri 819 (Śaka 1338), A.D. 1416. A translation of this *farman* was made into English by S. A. F. Moulvi of the Elphinstone High School, Bombay, on 6th October 1883 and submitted to the Court in a case described in the above book. In this *farman* we get the following references to *tambāla* and its ingredients used as a mark of honour under the orders of a Government Officer :—

A.D. 1416 — "Shahāj Khān, the Subhā, orders :—

- (1) One *bira* (*viḍa=tambāla*) (parcel of the betel-nut leaves, consisting of 16 leaves and 5 nuts) from every village to be given annually to the said Brahmin (Puruṣottama Rāo, Rajaguru, Kavale, Paithāṅkar).
- (3) If any one were to perform ceremony of *betrothing* one's child, one should send with music publicly a *bira* (*viḍa*) consisting of 50 leaves and 10 betel-nuts (as a token of Brahmin's honour) *expressive of an invitation*.

1. These lines have been quoted by Hemādri (c. A.D. 1260) in his commentary on the *Agneśāhdaya* (vide pages 25-26 of the edition by Hari Shastri Paradkar, N. S. Press, Bombay, 1938—*Saṃgrasthāna*, Chap. II dealing with *dharmacarya* or daily life of an individual).

- (7) *Tila* and *bira* (*viga*) i.e. a mark of red powder on the forehead and a parcel of betel-nut and leaves as a token of respect.

The above extract of A.D. 1426 shows forcibly the practice of offering *tāmbāla* with specific ingredients as a mark of honour and as a sign of betrothal, as current in the Thana District (of the Bombay Presidency) where the family of the Rajaguru Puruṣottama Rao Kavaḷe resided.

I conclude these notes with a request to scholars in different parts of India to record the beliefs current in different regions about the number of ingredients in a *tāmbāla*. Side by side with my study of the history of *tāmbāla* in India I intend to record the history of regional beliefs about *tāmbāla*, but such reconstruction of the regional history of *tāmbāla* is almost impossible without a close co-operation of brother-workers interested in the history of Indian Culture.

17. Studies in the History of Tāmbūla — History of the verse about the Thirteen Qualities of Tāmbūla—Between A.D. 1200 and 1900*

During the course of my study of the history of *tāmbūla* I have often been told by ladies and gentlemen about a *tāmbūla* with 13 *gunas* or qualities. I propose in this article to record literary evidence about such a *tāmbūla* with 13 qualities in particular.

(1) The belief in the numerous good qualities of *tāmbūla* is reflected in the following *subhāṣita*¹ which actually refers to 1000 qualities of *tāmbūla* in a hyperbolic style :—

“तांबूलस्य गुणाः संति सखे शतसहस्रशः ।

एकोऽपि च महादोषो यस्य दानादिसर्जनम् ॥ ७ ॥”

Translation :—“O friend, there are a thousand good qualities of a *tāmbūla*; there is, however, one great bad quality associated with it viz. the sending away (of guests) after its bestowal.”

(2) The anonymous medical compendium called the *Yogaratanākara* (Ānandāśrama, Poona, 1900) composed before A.D. 1746 contains the following verse mentioning the 13 qualities of *tāmbūla* :—

Page 35—“ताम्बूलं कटुतिक्तमुष्णमधुरं चारं कषायान्वितं

वातघ्नं कृमिनाशनं कफहरं दुर्गन्धिनिर्णशनम् ।

वक्त्रस्याभरणं विशुद्धिकरणं कामाग्निसंदीपनम्

तांबूलस्य सखे त्रयोदशगुणाः स्वर्गोऽपि ते दुर्लभाः ॥ ६२ ॥”

In view of this verse the belief about the 13 qualities of *tāmbūla* appears to have been current in India more than 250 years ago. We must, therefore, try to trace the above verse in sources earlier than A.D. 1700.

(3) In a MS of a work called *Prastāvaratanākara* (No. 320 of 1884-86 in the Govt. MSS Library at the B. O. R. Institute, Poona) the above verse is quoted on *folio 7a* as follows :—

**Annals* (B.O.R. Institute) Vol. XXXI pp. 138-142.

1. See p. 242 of *Subhāṣita-Ratnākara* (Collection of Witty and Epigrammatic Sayings in Sanskrit) ed. by Krishna Shastri Bhatawadekar, Bombay, 1872. The Index of the first lines of verses given at the end of this book indicates, wherever possible, the sources from which the verses have been taken. The verse about *tāmbūla* is, however, indicated in the Index as a miscellaneous verse (without a definite source).

“ताम्बूलं कटुतिक्तगुणमधुरं क्षारं कषायान्वितं
वातघ्नं कृमिनाशनं कृमिहरं दुर्गन्धिनिर्वाशनम् ।
वक्त्रस्याभरणं विद्युधिकरणं कामाग्निसंदीपनं
ताम्बूलस्य सखे त्रयोदश गुणाः स्वर्गेऽपि ते दुर्लभाः ॥”

The *Prastāvaratnakara* is a poem treating of various subjects. It was composed by Haridāsa, son of Puruṣottama in A. D. 1557 (see *Cata. Catalogorum* by Aufrecht, Part I, p. 360).

It is clear from the above evidence that the verse about the 13 qualities of *tambūla* is earlier than A. D. 1557.

(4) In a MS of *Dhanvantari Nighaṇṭu* (No. 923 of 1884-87) in the Govt. MSS Library at the B. O. R. Institute the verse about the 13 qualities of *tambūla* reads as follows :—

Folio 28 —“ ताम्बूलवर्णः गुणाः ॥

तम्बू कटुतिक्तगुणमधुरं क्षारं कषायान्वितं
वातघ्नं कृमिनाशनं कृमिहरं दुर्गन्धिनिर्वाशनम् ।
वक्त्रस्याभरणं विद्युधिकरणं कामाग्निसंदीपनं
ताम्बूलस्य सखे त्रयोदश गुणाः स्वर्गेऽपि ते दुर्लभाः ॥”

This MS is dated Śaka 1605 (= A. D. 1683). It contains the text of the *Dravyavali* or the *Dhanvantari Nighaṇṭu* followed by the text of the *Rajanighaṇṭu*. This verse is found in the text of the *Rajanighaṇṭu*, which is called in the colophon as “*Nighaṇṭuśāstra*”.

(5) The *Rajanighaṇṭu* of Narahari (c. A. D. 1450) as printed by the Ānandaśrama, Poona, 1896, also contains the verse in question. It reads as follows :—

Page 131—“ ताम्बूलं कटु तिक्तगुणमधुरं क्षारं कषायान्वितं

वातघ्नं कृमिनाशनं कृमिहरं दुर्गन्धिनिर्वाशनम् ।
वक्त्रस्याभरणं विद्युधिकरणं कामाग्निसंदीपनं
ताम्बूलस्य सखे ! त्रयोदश गुणाः स्वर्गेऽपि ते दुर्लभाः ॥ ४ ॥”

It would be clear from this quotation that the verse about the 13 qualities of *tambūla* is earlier than about A. D. 1450.

(6) A work on *dharmaśāstra* called the *Jyotir nibandha* by Śivaraṇja or Śivadāsa, published by Ānandaśrama, Poona, 1919, also contains the verse under reference among the 24 verses on *tambūla* recorded in this work, which is earlier than A. D. 1524 according to S. B. Dikshit (vide p. 476 of *History of Indian Astronomy*, Poona, 1896). The verse reads as follows in this work :—

Page 235 —“ ताम्बूलं कटुतिकमुष्णमधुरं क्षारं कषायान्वितं
वातघ्नं कृमिनाशनं कफहरं कामाग्निदीपनम् ।
वक्त्रस्याभरणं विशुद्धिकरणं दुर्गन्धिनिर्वाशनं
ताम्बूलस्य सखे त्रयोदशगुणाः स्वर्गेऽपि ते दुर्लभाः ॥ २२ ॥ ”

This evidence corroborates the quotation of the verse in the *Rajaniṣṭhaṇṣu* (c. A. D. 1450).

(7) The Sanskrit anthology called the *Sūktimuktavali* by Jalhana was composed in A. D. 1258 for Kṛṣṇa, the Yadava King of Devagiri (Vide p. 12 of Introduction to *Sūktimuktavali*, Gaikwar Ori. Series, Baroda, 1938). In this anthology some verses are recorded under the topic *bhojana* (dinner). Among these verses we find two verses on *tambula* from Varṇahamihira (c. A. D. 500) and three anonymous verses on *tambula* including the verse about the 13 qualities of *tambula* which reads as follows —

Page 402 —“ ताम्बूलं कटुतिकमुष्णमधुरं क्षारं कषायान्वितं
वातघ्नं कफनाशनं कृमिहरं दुर्गन्धिनिर्वाशनम् ।
स्त्रीसंस्पर्शभूषणं रुचिकरं शोणकस्य विच्छेदकं
ताम्बूलस्य सखे त्रयोदशगुणाः स्वर्गेऽपि ते दुर्लभाः ॥ १३१ ॥ ”

The text of the verse shows some variations in this anthology. The expression “कामाग्निदीपनं” in line 2 is dropped altogether and in its place the expression “दुर्गन्धिनिर्वाशनं” from line 3 is pushed up. The 3rd line viz. “स्त्रीसंस्पर्शभूषणं रुचिकरं शोणकस्य विच्छेदकं” is altogether new, ousting out the two epithets of *tambula* viz. “वक्त्रस्याभरणं, विशुद्धिकरणं” occurring in subsequent quotations of this verse. Perhaps the text of the verse as quoted by Jalhana is in the oldest form.

It would appear from the evidence recorded so far that the idea about the 13 qualities of *tambula* was current in India about A.D. 1200, if not earlier. At this stage of my inquiry about the history of the verse under reference I may raise the following questions for investigation :—

- (1) Is Jalhana the author of the verse ?
- (2) Can we trace the verse in sources earlier than A.D. 1200 ?
- (3) What other texts, excluding those recorded in this paper, quote the verse subsequent to A.D. 1200 ?

In the *Subhāṣitaratnabhaṇḍagāraṃ* (N. S. Press, Bombay, 1911) I find the following anonymous verses about *snāna* and *tambula*—

Page 150 — स्नानम् (Bath)

“ स्नानं नाम मनःपलादजननं दुःस्वप्नविष्वक्शनं
 शीतस्वायतनं मलापरणं संवर्धनं तेजसः ।
 स्फोटकरं गदघणनं कामाग्निसंदीपनं
 नारीणां च मनोहरं श्रमहरं खाने दृष्टौ तु गुणाः ॥ १०३ ॥ ”

ताम्बूलम् — “ तम्बूलं मुखरोगनाशि निपुणं संवर्धनं तेजसो
 नित्यं जाठरार्थं हृद्दिजननं दुर्गन्धदीपापहम् ।
 वक्त्रालंकरणं व्यर्थजननं विदग्धनाभे रणे
 कामरपायतनं समुद्रवकरं लक्ष्म्याः मुखरपाशदम् ॥ १०४ ॥ ”

The verse about *tāmbūla* in the above extract is similar to the verse about the 13 qualities of *tāmbūla* which I have traced back upto about A.D. 1250.

In the *Triennial Report* (for 1893-94) by Sheshgiri Shastri MS No. 51 is called चारुचर्पा which is ascribed to Bhojarāja. The following lines giving the qualities of *tāmbūla* are found in this MS :—

“ तदुक्तं चारुचर्पायाम्—
 मनसो हर्षणं भोटं रतिदं मदकारणम् ।
 मुखरोगहरं हृद्यं दीपनं वस्तिशोषणम् ॥
 मुखशुद्धिं कृमिहरं ताम्बूलं श्लोकं परम् ॥ ”

One of the best and perhaps the earliest stanza describing the good qualities of *tāmbūla* is the following, found among the three stanzas on *tāmbūla* in chapter 77 of the *Brhatsamhitā* of Varāhamihira (c. A. D. 500) which describes the preparation of perfumes (*gandha-yukti*):—

“ कामं प्रदीयति रूपप्रियनक्ति
 लोभायमावहति वक्त्रसुगन्धिता च ।
 ऊर्ध्वं करोति कण्ठान्धं निहन्ति रोगान्
 ताम्बूलमेवमपरांश्च गुणान् करोति ॥ ३५ ॥ ”

V. Subrahmanya Sastri in his edition of the *Brhatsamhitā* (Bangalore, 1947) Vol. II, p. 612 translates the above stanza as follows :—

“ Betel stimulates love, sets off the physical charm, creates popularity, gives good smell to the mouth, strengthens the body and dispels diseases arising from the phlegm. It also bestows many other benefits ”—*Sloka* 35.

The above verse contains a major number of the good qualities of *tāmbūla* out of the number recorded in the verse about 13 qualities of *tāmbūla*. I cannot, however, say if the verse of Varāhamihira about *tāmbūla* quoted above has influenced subsequent verses about the *guṇas* of *tāmbūla*, some of which have been recorded by me in this paper.

18. Studies in the History of Tāmbūla—The Amatory Perspective of the Matrimonial Custom of cutting the Betel-Leaf roll (vidī)*

As a result of my studies in the history of *Tāmbūla* I have been led to study some of the customs associated with it such as exchange of *tāmbūla* as a sign of betrothal or marriage, and *tāmbūla* as a token of honour, as a token of a vow or pledge, as a token of love etc. In *Maharāṣṭra* a peculiar custom has been current in connection with marriage ceremonies. At marriage dinners the bride and bridegroom are made to sit, facing each other. A small roll of betel-leaves called *vidī* (Sanskrit *viḍi*) is then given to the bride, who holds one end of it fast by the front teeth. The relatives and guests assembled, all in a jovial mood, give a signal to the bride and bridegroom to snap asunder the roll or *vidī* by a simultaneous downward jerk of their mouths. No sooner is the signal given than the *vidī* is cut asunder, much to the inward but suppressed joy of the bride and the bridegroom and the hilarious merriment of the young and old relatives and guests, who watch the fun with great satisfaction and approval. The performance is repeated a few times by the bride and the bridegroom in response to the demand of the spectators. When the dinner begins the guests insist on another performance viz. the putting of a morsel of food by the bridegroom into the mouth of the bride,

In cutting the *vidī* (betel-leaf roll) the faces of the bride and the bridegroom come into close contact, which is the nearest approach to a kiss before the public, otherwise prohibited in Hindu society.

The Marathi Dictionary called the *Śabdakośa* (by Y. R. Date and C. G. Karve, Poona, Vol. VI (1938) p. 2827) records the word *vidī* in the sense of *tāmbūla*. The usages of this word given by the authors of this Dictionary are as follows:—

- (1) “विद्धि कस्तुरि समर्पि महासती”

— Narahari, *Dānavrata* 17

- (2) “राव होता मुखसदनी । विद्धिया देतसे मोहिनी ॥”

— *Kathakalpataru* by Kṛṣṇayājñavalki 2. 9. 93

- (3) “धरा शांतता खाव्या विद्धी ।”

— *Lavṇya* (Ballads) by Honaji Bai (Poona, 1924) —No. 83

**Poona Orientalist*, Vol. XIV, Nos. 1-4, pp. 78-84.

This Dictionary also refers to the matrimonial custom of "Cutting the *vidi* or *vidi*" as follows :

समस्तमंगल शुभरात तोडयवासाठी देण्यांत येणारी वानाची तुळी, लवंग खोबराची काचळी etc. "

(A roll of betel-leaf, a clove,¹ a slice of copra etc. given to the bride and the bridegroom for cutting by the teeth at marriage ceremonies)

No documentary reference to this matrimonial custom is given in this Dictionary. It is for scholars in the field of Marathi literature to record at least a few references to this custom from sources early or late.

The *Marathi-English Dictionary* by Molesworth and Candy (Bombay, 1857) p. 757, refers to the custom of "Cutting the *vidi*" as follows :—

"*विडी* — At weddings. A roll of the leaf of piper-betel or a piece of coconut, or a clove put into the mouth of the bride or bridegroom, for him or her to tear it out with the teeth."

This reference to the custom of "cutting the *vidi*" at weddings needs to be supported by references to this custom in Marathi sources prior to 1857. We must also investigate and record any references to this custom by foreign travellers in their travel-books or other records, so far known or published.

The *Bombay Gazetteer*, (Vol. XVIII, Part I (Poona), Bombay, 1885, p. 213, describes the marriage ceremonies of the *Patane Prabhu Caste*. In the description of the dinner after a wedding we find a reference to the custom of "Cutting the *vidi*" in the following extract :—

Page 213 — "In the after-noon the bride and bride-groom eat from the same leaf-plate, feeding one another in the presence of the women and children of the house. When the meal is over small round betel-leaf parcels are given to the boy and girl. *The bride holds one end of the rolled leaf in her teeth and the bride-groom bites off the other end.*"

The origin of the custom of "Cutting the *vidi*" and its history cannot be traced on the strength of documentary evidence in the present state of my inquiry. I shall, however, try in this paper to paint the romantic back-ground of the use of *tambula* between lovers or between

1. Cutting a clove by mouths facing each other, though a difficult operation, is perhaps more enjoyable to the bride and the bridegroom as it brings their mouths in close contact, which is virtually *akhi*.

husband and wife, the history of which can be established for about 2000 years. Perhaps "Cutting the *vidī*" is the first step in the use of *tambūla* authorized by society between the husband and wife in the amatory way. The capacity of *tambūla* to stimulate passion has been expressly recognized by the celebrated Indian astronomer Varāhamihira (c. A.D. 500) in the following stanza in Chapter 77 of his *Brhatsamhita* :—

“ कामं प्रदीपयति रूपमभ्यर्त्ताक
 सौभाग्यमावहति वक्त्रसुगंधिता च ।
 ऊर्जं करोति कफजोष निहन्ति योगान्
 ताम्बूलमेवमपरात्र गुणान् करोति ॥३५॥ ”

(Betel stimulates love, sets off the physical charm, creates popularity, gives good smell to the mouth, strengthens the body and dispels diseases arising from the phlegm. It also bestows many other benefits).

The amatory property of *tambūla*, is one of the 13 recognized qualities of *tambūla*, the history of which I have proved in a special paper.²

Venkaṭanātha in his *Saccaritararākṣa* (edited by Śrīnivāsaśārya svāmī, Venkateśvara Press, Bombay, 1909, p.96) records the following quotation from a work called *Viśvātattva* (yogapāda) *antima paśala* :—

“ शेषभुक्तिं प्रशंसति युनयस्तत्त्वदर्शिनः ।
 युवानः खलु वाञ्छन्ति ताम्बूलं तस्माद्युक्ताम् ॥ ”

Śeṣa-bhukti” (eating the leavings or remainder) is praised by sages (as it is a token of extreme affection); young men have a longing for *tambūla* from the mouths of young damsels. In this passage we have by way of example a reference to the practice of eating *tambūla* in its amatory perspective.

Vātsyāyana in his *Kamasūtra* (chapter XXIV—*Paradārika Adhikāra*, p. 266 of N. S. Press Edition, Bombay, 1900) describes in detail the technique to be followed by a lover in his advances to a married woman. In this connection he observes as follows :—

2. Vide *Animals* (B. O. R. Institute, Poona, 1951) Vol XXXI, pp. 138-142. The verse about the 13 qualities of *tambūla* as found in *Jyotirbandha* of Śivādāsa (before A. D. 1524) reads as follows :—

“ ताम्बूलं कटु तिक्तमुष्णमधुरं चारं कषयाश्लितं
 वातघ्नं रुमिनाशनं कफहरं कायामिंसरीषणम् ।
 वक्त्रसौभाग्यं विशुद्धिकरणं दुर्गन्धिनिर्नाशनम्
 ताम्बूलस्य सखे प्रबोदयगुणाः स्वर्गेऽपि ते तुल्यभाः ॥ ”

"He should kiss and hug a child as a symbol of the woman, put betel (*tambala*) in its mouth with the help of his tongue etc.

("बाल-मुचनमालिङ्गनं च, त्रिष्वपा खास्य ताम्बूलान्" etc.)

This is perhaps the earliest prescription of *tambala* for amatory purposes by an authority on the art of love. Our matrimonial custom of "Cutting the betel-leaf roll" by the bride and the bridegroom with their mouths close to each other is an authorised step in the technique of love-making after marriage. Unlike Vātsyāyana's prescription it is considered perfectly moral and decent as it is within the sacred enclosure of matrimony.

Dīmodara Gupta (A.D. 755-786) in his didactic poem *Kuṣṣānīmata* (ed. by T. M. Tripathi, Bombay, 1924) describes the life of the courtesan Malattiliving in Benares. In the following verse 549 (page 163) this courtesan refers to the use of chewed *tambala* put by the lover into the mouth of the beloved in an amatory way.

"लामः स एव पयः पर्याप्तं तेन तुमाऽस्मि ।

विनिवेश्य यदुत्तरे निक्षिप्य मुखे मुखेन ताम्बूलम् ॥ ५४९ ॥"

The learned editor Mr. T. M. Tripathi³ in his Sanskrit commentary on the above stanza observes:—

"स्वचक्षितं ताम्बूलं मामहे रथापविता मधुपभोगाय मम मुखे सञ्चारयति तेनालं सम्पुष्टाऽस्मि, विषयुरूपे विषया समेन भुञ्जते विषवसाद इति । तथा चोक्तं—“उत्साहस्तोमाहि पतिपलादः ।"

(*Vikramānkaśāstrīya-carita* of Bilhaṇa—c.A.D. 1050—Sarga X, verse 38)

The poet Śrīharṣa in his *Naiṣadhacarita* of 12th Cent. A.D. (English Trans. by K. K. Handiqui, Lahore, 1934) describes in Chapter XX Nala's jesting with Damayanti, recalling various experiences of their conjugal love. In this connection Nala says:—

3. Tripathiquotes the following stanza bearing on the importance of *tambala* :—

"किं ताम्बूलविहीनमानवितं पिबुषुषुर्होत्रं मुलम्
सिन्धोऽसिबिब्रज्जितं च रचनां, पिबपाणिमस्वर्णदम् ।
पिप्रामं च तमिषीपिगदितं पिबदाक्षीनां समाम्
सिन्धुक्तं वृत्रक्षितं, पिबवसाऽशूनां च शय्यामपि ॥"

"Fire sponthe mouth-hole without *tambala*, a face without the fore-head mark, a tongue devoid of the recitation of the Veda, a hand that does not give gold, a village without a river, an assembly without a learned man, a dinner without a bee, and a bed without a woman !"

Chap. XX, verse 82 —

‘‘ जागर्ति तत्र संस्कारः स्वधुलं वदानने ।
नक्षिप्यावाचिं यत्ता न्यायासांभूलकालिकाः ॥ ८२ ॥ ’’

Page 292 — (“ Dost thou recollect, after passing bits of betel from my mouth into thine. I justly demanded them back ”).

Tripathi quotes the following anonymous stanza in his commentary on verse 549 of *Kuṣṣāṇmatī* (Bombay, 1924, p. 163) :—

A lover addresses his beloved and asks for *tāmbūla* from her mouth as follows :—

‘‘ तालाकारप्रोधरे तनुभुवस्तन्वाधिराग्नये
ताम्यमभ्यलते तद्द्वारसमन्वे तन्मीसमालाविनि ।
ताटङ्गान्तरङ्गिताक्षिपुगले तन्वङ्गि ताम्राधरे
तारानायनिमानने तव मुखासाम्बुसमादोषताम् ॥ ’’

Other verses quoted by Tripathi in the same context are noteworthy. They are as follows :—

A gallant asks his lady-love for *tāmbūla* :—

‘‘ त्वन्नेत्राञ्जलवद्वदीपितपदं त्वन्मध्यवन्दुहिना
मार्गं, त्वत्कुचकुम्भवत्तुल्यव्यापारलीलास्पदम् ।
त्वन्चेतोवदमन्दरागजननं, त्वन्मूर्तिवत्कामदम्
स्वादिष्टं च तवीध्वजं, तदपि मे ताम्बूलमाभीषताम् ॥ ’’

The following stanza states that a man who does not chew *tāmbūla* early in the morning, at dinner-time, in the company of a woman and in the assembly of learned men at the royal court, is a veritable beast :—

‘‘ प्रयुयसि युक्तसमये युवतीनांचैव संगमे विद्ये ।
विद्वद्वाजसभायां ताम्बूलं यो न खादयेत् पशुः ॥ ’’

The *Sṛṅgārāmytalaharī* refers in the following stanza to a lover putting a *ṣṭhī* (= *tāmbūla*) into the mouth of his beloved :—

‘‘ श्रन्वास्ताः सखि योषितः सहचरं लावययलीलाप्रदाः
सेवाभिः प्रचुराभिरुदुग्धमाषमातन्वते ।
अस्माकं तु समीरय वितनुते चेलाञ्जलैरादराद्-
श्रीदीमाननपङ्कजे विद्युज्जति प्राणेश्वरः किं किये ॥ ’’

The betel-chewing has been a gay associate of the Aryans in India for about 2000 years as proved by the evidence recorded by me in the present paper. This evidence needs to be increased on the strength of the varied sources of Sanskrit poetry and rhetoric, which are likely to yield charming material bearing on the amatory aspects of *tambula*. At present the three Ts of Indian social life are : (1) **Tea**, (2) **Tobacco** and **Tambula**, of which *tea* and *tobacco* entered India after A.D. 1600 while *Tambula* entered India during the early Gupta period and completely naturalised itself in Indian life and culture to such an extent that its foreign origin was entirely forgotten.

19. Studies in the History of Tāmbūla — Use of Lime (Cūrṇa) and Catechu (Khadira) in Tāmbūla and its Antiquity — c.A.D. 100-1900*

After my paper¹ on the history of *Indian Nut-Cracker* (A.D. 1300-1800) was published, a friend of mine suggested that I should write a paper on the history of the *lime-pot* used for keeping lime or *chunam* by persons who eat *tāmbūla*, a combination of the *betel-nut*, *betel-leaf*, *catechu* and other spicy ingredients. I agreed to this suggestion and began to hunt up references to lime-pot in literary sources known to me. Unfortunately in the material about *tāmbūla* collected by me I could not locate any definite references to the lime-pot as such though we have reason to believe in the existence of some lime-pot since our ancestors began to use *chunam* or lime as an ingredient of *tāmbūla*. It is, therefore, necessary to prove the antiquity of *lime* (= *cūrṇa* in Sanskrit) as used in *tāmbūla* as also of *catechu* (= *Kat* in Marathi) as the combination of the *chunam* and *catechu* in the mouth reddens the mouth of the person chewing *tāmbūla*.²

(1) Raghunātha Paṇḍita in his *Rajavyavaharakośa* (c.A.D. 1676) refers to *lime* as चूना ('चूना नाम भवेच्चूर्णम्') and *lime-pot* as चुनाल ('चुनालः स्याच्चूर्णशयम्') as I have already pointed out in my paper on the *Nut-Cracker* referred to above.

(2) The Marathi Dictionary called the *Śabdakośa* (by Y. R. Date and C. G. Karve, Vol. III, p. 1210) records the following words for *lime-pot* :—

“चुनाळ, चुनाळ, चुनाळे”

and derives them from Sanskrit चूर्ण + आलय (= चूर्णालय) = चूर्णपात्र of the

**Sardharatābdi Commemoration Volume*, Asiatic Society, Bombay, 1937, pp. 65-77.

1. *Bhāratālikāśa* Mandal Quarterly, Poona, 1948, pp. 8-14.

2. Cakrapāṇinītha in his *Bhāvopahāra* (Kāśmīrī Sanskrit Series, No. 14, Srinagar, 1918, pages 36-37) refers to *tāmbūla* in the following stanza 39 :—

“इवविभक्तानन्दनायकदीपलोज्ज्वलम्
रक्तसप्रेन्द्रुषुभि ताम्बूलं ते निवेशते ॥ ३९ ॥”

The commentary of Rāmyadeva Bhaṭṭa on this stanza explains *tāmbūla* as “कान्तपत्रं वस्त्रोपकरणम्.” This etymology of *tāmbūla* needs to be examined. It is indeed highly imaginative.

Rajavyavaharakosa. So far I have not traced any usages of the चूर्णम् or चूर्णम् in the Sanskrit sources

The *Saddakosa* does not record any usages for the words about lime-pot referred to above.

(3) The habit of chewing the *tambala* is current in Indo-China. This habit has a great antiquity as I am informed by my friends at Hanoi, one of whom has sent me a version of a story about its origin which I am appending to this article. Consistent with this tradition is the discovery of a lime-pot at Thanh-hoa (in Northern Annam) by O.R.T. Janse, who led an expedition to Indo-China and the Philippines and published his report on it in the *Harvard Journal of Asiatic Studies* (June 1941). A photograph of this lime-pot will be found on Plate XXV. This lime-pot is one of the articles of the Sung and Ming dynasties discovered by Janse. Prof. P. K. Mukherji in his *Indian Literature in China and the Far East*, Calcutta, 1931, records the following chronology of the Sung and Ming dynasties in his list of the Translators of the Chinese *Tripitaka*—(Pages 3-4)—Later (Northern) Sung dynasty A.D. 960-1127 K'ai-fung (Hanan)—Southern Sung dynasty—A.D. 1127-1280—Ming dynasty—A.D. 1368-1644. It is not clear from Janse's Report whether the lime-pot belongs to the Sung or the Ming dynasty. We may, however, conclude that it belongs to the period A.D. 960-1644 and hence cannot prove the use of lime in *tambala* in Indo-China prior to A.D. 960.

(4) In the article on *Chunam* in the *Hobson-Jobson* (by Yule and Burnell, London, 1903, pp. 218-219) we get the following dated references to the use of lime in *tambala* :—

A.D. 1510—"And they also eat with the said leaves (betel) a certain lime made from oyster shells, which they call *cionama*."

—*Varthema*, 144

A.D. 1563—"...So that all the names you meet with that are not Portuguese are Malabar, such as *betre* (betel), *chuna*, which is lime....."

—*Garcia*, fol. 37g

A.D. 1610—"Chunan"—Pyrard de Laval, ii. 84 (Hak. Soc. ii, 135).

A.D. 1614—"Having burnt the great idol into *Chunah* he mixed the powdered lime with *pan* leaves and gave it to the Rajputs that they might eat the object of their worship."

—*Ferishta*, quoted by *Quartremère Not et ...Ext XIV 510*

A.D. 1673—"The natives chew it (betel) with *Chinam* (lime of Calced Oyster Shells)."

—*Fryer*, 40

A.D. 1689 — "Chinam is Lime made of Cockle-Shells or Limestone : and Pawn is the leaf of a Tree."

—Ovington, 123

These references³ clearly prove the use of lime in *tambala* and in particular of the lime prepared from Oyster Shells or Cockle-Shells, which is even now used in some parts of India.

(5) From the reference to the use of lime from Oyster Shells in *tambala* made by Varthema in A.D. 1510 we now turn to the section on *tambala* (*tambalabhoga*) of the *Manasollasa* (c.A.D. 1130) of king Somesvara. In this section the lime from pearl-oysters is prescribed for use in *tambala* or *viṭaka* (Marathi *viḍa*) as follows:—

"मुकाशुक्तिभवं चूर्णं वटकेषु निधापितम्"

[See p. 84 of *Manasollasa*, Vol. II (G. O. Series, Baroda, 1939)]

The use of lime in *tambala* is thus clearly established from c.A.D. 1100 up to the present day.

(6) In The Tīntrika treatise on Yoga called the *Śiva-Saṃhita* (3rd Edition, Pāṇini office, Allahabad, 1942) we find the following references to *tambala* including a reference to "Cūrpa" or lime:— Page 32 — The Yogi should try to attain success in Yoga by the following means:—

"He should use clarified butter, milk, food, and betel without lime, camphor, husked sweet grains, pleasant monastery or retired cell, having a small door etc."

"पूतं वीरं च मिश्रन् ताम्बूलं चूर्णवर्जितम् ।

कर्पूरं निस्तुषं मिः सुमठं सुन्दरभ्रकम् ॥ ४० ॥"

On p. 58, however, *tambala* has been definitely mentioned among the impediments of Yoga as follows:—

"नारी शयसनं वस्त्रं धनमस्यविदम्बनम् ।

ताम्बूलं भक्षयानानि राजैश्वर्यभूतयः ॥ ३ ॥

भोगस्या इमे विघ्ना धर्मस्यानिमाञ्छसु ॥ ६ ॥"

Trans.—"Women, beds, seats, dresses and riches are obstacles to Yoga. Betels, dainty dishes, carriages, kingdoms, lordliness and powers etc."..... These are the obstacles which arise from *Bhoga* (enjoyment) etc."

3. Bernier's reference (c.A.D. 1660) to *tambala* may be added to the references from the Hobson-Jobson. It is as follows:—

"Betel is a small parcel made of aromatic leaves; and other ingredients mixed up with a little of the lime made from sea-shells, this colours the lips and mouth red and agreeably perfumes the breath." (pp. 13-14 of *Travels*, London, 1891).

Narayanatirtha in his commentary *Yogasiddhānta-candrika* (Chowkhamba Sans. Series, Benares, 1910, p. 100) refers to *tāmbūla* without lime in the following verse :—

“कर्म रं सुरं लिखं गन्धं ताम्बूलमेव च ।
चूर्णेन रसितं धातुपोषणं योगिनां शुभम् ॥”

(7) The earliest datable reference to the use of *cāṇṇa* or *lime* or *chunam* in *tāmbūla* so far traced by me is found in the section on Perfumes (*Gandhayukti* of the *Bṛhatsaṃhitā* (c.A.D. 500) of Varāhamihira (Chap. 77, Verses. 35-36, 37 dealing with *tāmbūla* — pages 612-613 of the Edition with Eng. Trans. by V. Subrahmanya Sastri. Bangalore, 1947). This reference is as follows :—

“मुक्तेन चूर्णेन करोति रागं
रागचूर्णपूषणातिरिक्तम् ।
चूर्णाधिकं वदन्निगंधकारि
पत्राधिकं साधु करोति कथम् ॥ ३६ ॥”

Translation — “A moderate dose of lime used with betel-leaves gives good colour; an extra quantity of areca nut spoils the colour; excessive lime produces bad smell in the mouth, but an extra quantity of betel-leaf pleasant smell.” Lime by itself with betel-leaf may not produce red colour in *tāmbūla* when chewed. At present deep red colour⁴ is obtained by the combination of lime and *catechu* (Marathi *Kat*) in the *tāmbūla*. We must, therefore, record evidence about the use of *catechu* in *tāmbūla* from Sanskrit and non-Sanskrit sources.

(8) The *Sūtrāsāṃhitā* (N. S. Press, Bombay, 1938) mentions the use of *cāṇṇa* or lime in *tāmbūla*. in the following verse 21 of Chap. 24 of *Cikitsāsthāna* :—

“कपर्वातीक्ष्णोलसवङ्गकटुकाद्वैः ॥
सचूर्णैः सलितं पत्रं ताम्बूलं शुभम् ॥ २१ ॥”

Tāmbūla is also mentioned in the following verses of Chap. 46 of the *Sūtrāsāṃhitā* :—

4. *Rajamaharaja* of Narahati (c.A.D. 1450) refers to the dye-producing properties of *Khadira* (*Khadira arborescens*) or extracts from the *Khadira* tree (*Catechu*) in the following verse (p. 13, *Amarendra* Edition, Poona, 1896) :—

“कादिरः कदिरेद्रुतः सलाये रङ्गः स्मृतः ।
श्लेषः सविरसारश्च तथा रङ्गः पञ्चाङ्गयः ॥ ४१ ॥”

Page 249 — “तस्माद्भुक्तेरितं कपम् ॥ ४८४ ॥
 धमेनापोष्णं हृत्वे कषायकटुतिक्तकैः ।
 पूगकक्षेलकपूरलवङ्गमुमनःफलैः ॥ ४८५ ॥
 फलैः कटुकषायैर्वा मुखवैराग्यकारकैः ।
 ताम्बूलपत्रसहितैः सुगन्धैर्वा विचक्षणैः ॥ ४८६ ॥”

(9) The *Caraka-samhitā* also mentions *tambula* in the following verses of Chap. 5 of *Satrasaṭhāna* (p. 42 of N. S. Press Edition, Bombay, 1941) :—

“ धार्वाण्यारवेण वैराग्यवृत्तिसौमन्यमिच्छता ॥ ७६ ॥
 जातोक्तुकषणानां लवङ्गस्य फलानि च ।
 कक्षेलस्य फलं पत्रं ताम्बूलस्य शुभं तथा ।
 तथा कर्पूरनिर्यासः सूक्ष्मैलायाः फलानि च ॥ ७७ ॥ ”

There is no reference to *cārṇa* or lime in the above ingredients of *tambula* mentioned in the early medical text of the *Caraka-samhitā*. We must go through the whole text of this work and see if *cārṇa* as an ingredient of *tambula* has been mentioned in some other context.

(10) The *Rājanighaṇṭu* of Narahari (c. A. D. 1450) records the following verses about *cārṇa* on p. 132 of the *Ānandaśrama* (Poona, 1896,) Edition of this work :—

गुणाः—“चूर्णं चार्जुनवृक्षजं कफहरं गुल्मप्रमकाङ्क्षयम्
 शोफघ्नं कुष्ठजं कर्णजनितं वातापहं रुच्यदम् ।
 पित्तघ्नं जलजं बलामिदचिदं शैलाङ्गणं पित्तदम्
 स्फाटिकं दृढदन्तपट्टिकजननं शुक्रयादिजं रुच्यदम् ॥ १० ॥

ताम्बूललक्षणम्—

पर्णाधिक्ये दीपनी रज्जुदात्री
 चूर्णाधिक्ये रुक्षदा कुच्छदात्री ।
 साराधिक्ये स्वादिरे शोषदात्री
 चूर्णाधिक्ये पित्तकृन्तिगन्धा ॥ २१ ॥ ”

Verse 20 in the above extract mentions the properties of *cārṇa* from the *Arjuna* tree, *Kuṣṭaja* plant etc. The *cārṇa* from *sukti* (pearl-oyster) mentioned last in this verse is identical with the lime from oyster-shells used in *tambula*. Verse 21 definitely deals with *cārṇa* or lime and its use as also the use of *Khadirasāra* or catechu in *tambula*. This verse may be compared with verse 36 in the *Gandha-yukti* section of the *Bṛhatsamhitā* quoted above,

(11) The *Aṣṭāṅgasamgraha* (c.A.D. 925 according to Hoernle, or 8th-9th cent. A.D. according to Prof. Dineshchandra Bhattacharya) of

Vagbhata definitely refers to *Curua* (lime) and *Khadira* (catechu) in *Samhita* in the following verses (34-38) of Chap. 3 of *Sutrasthana* (ed. by R. D. Kinjawadekar, Poona, 1940, p. 15).—

“ इषिवैद्यपयोग्यमिष्टान्वहनेण धारयेत् ॥
 आतीत्यह्वर्यपरकृत्तोलकटुसैः सह ॥ ३५ ॥
 तावन्तीनां क्लृप्तस्य हृत्तं पुष्पलान्वितम् ॥
 रक्तपित्तक्षीकृत्तोलकृत्तपित्तचक्षुषाम् ॥ ३६ ॥
 विषमूर्च्छाप्रदातानामप्यं शोषिणां च तत् ॥
 पथं शुभ्रोपिते भुक्ते स्नाते बान्ते च मानवे ॥ ३७ ॥
 दिपन्नेषु पृथं च सञ्चूर्णस्वदिर् च तत् ॥ ”

(12) The importance of the medical properties of the *Khadira* (*Acacia Catechu*) and its products was recognized more than 2000 years ago as will be seen from the references to *Khadira* by Caraka, Suśruta, Vagbhata, Hārta, Cakradatta, *Dhanvantari-Nighaṇṭu*, Vṛnda, Śoḍhala, Bhāvamīśa (*Bhāvaṇṭa*) etc. collected by my friend Vaidya B. G. Shab (Pages 452-453 of the *Nighaṇṭu Ādarsa*, Part I, Ahmedabad, 1927). R. N. Khorv in his *Materia Medica*, II, 184, records the *Actions and use of catechu* as follows :—

“Powerful astringent, stronger than Kino, anti-periodic and digestive. Its action is due to the tannic acid it contains. It is a powerful astringent to the mucous membranes, given in dyspepsia attended with pyrosis, and in diarrhoea in children; in dysentery, intermittent fevers and scurvy; as a gargle in hoarseness of voice and sore throat. Locally as a dusting powder, hypertrophied relaxed tonsils, ulcerated and spongy gums and to control passive hæmorrhages.

(13) The combination of the decoction of the *khadira* (*Catechu*) and *Kramuka* (betel-nut) is prescribed in urinary troubles by the *Sutrasthana* (N. S. Press, Bombay, 1933, p. 452)—*Cikitsasthana*, Chap. II, Sect. follows :—

“ इति यत्नं कर्तुं कटुक-वर्षा... धारयेत् ॥ ६ ॥ ”
 (variant “ कर्तुं कटुक-वर्षा ”)

explained as *white catechu* by the lexicons *Vaiṣṇavān*—“ इति तु इति कटुक-वर्षा ” and *Medini* (c.A.D. 1200-1275)—

In the *tambāla* also there is a combination of *kramuka** (betel nut) and *khadira* (catechu).

(14) The *Carakasamhita* (N. S. Press, Bombay, 1941) gives recipes of (1) a pill (*gufika*) of *Catechu* (*Khadira-sāra*) and (2) oil from *Catechu* in the *Cikitsāsthāna*, Chap. 26, verses 206-214 (p. 609). These recipes are prescribed for persons suffering from *mukharoga* (diseases of the mouth). The recipe of the *Khadira-gufika* contains numerous ingredients like चन्दन (sandal), लवङ्ग (clove), ककोल, जातिशोथ (nutmeg or its outer covering), मञ्जिष्ठा, पातकी, एला (cardamom) etc. Some of these ingredients are used at present in *tambāla*. The verses referred to above begin with "गुलिं खदिरसारस्य" and end with "खदिरादिगुटीकेन तैलं च खदिरादिक्म्." In this *Khadira-Gufika* of Caraka we have the ancestor of our modern scented *Kat-golī* or *Catechu pill* used in *Tambāla*.

(15) The definite *Catechu pill* (*Kat-golī*) used in *tambāla* is described in detail by Someśvara in his *Manasollāsa* (Section on *Tambāla* called *tambāla-bhoga*) — Vol. II (G. O. Series, Baroda, 1939), p. 85 :—

(खदिरगुटिका)—“खदिरकाथचूर्णं तु कस्तुरीचोदमिश्रितम् ॥ ६७४ ॥

श्रीस्वयम्भुवल्कलसंयुक्तं कर्पूररजसान्वितम् ।

मेलयित्वा समभागैर्गुटिका कल्पिता शुभा ॥ ६७५ ॥

त्रिदोषशमनी कण्ठ्या दन्तानां च बलावहा ।

(खदिरसारमुत्तरञ्जन)—अन्तस्तदिरसारस्य चूर्णं कोष्ठाम्लसंयुतम् ॥ ६७६ ॥

जातीफलस्य चूर्णेन मिश्रितं मुत्तरञ्जनम् ।

जम्बीरबीजपूरस्य कलिक्वाभिः समन्वितम् ॥ ६७७ ॥

कर्पूरपुलं स्वादेभ्य तदनु क्रमुकान्वितम् ॥”

The *catechu-pill* for king's *tambāla* contained *musk* (*Kasturi*), *Sandal* (*Śrīkhaṇḍa*), *camphor* (*Karpūra*), while the *catechu-powder*, used with *tambāla* contained powder of *nutmeg* (*jaṭiphala*), *camphor* (*Karpūra*) etc.

(16) In the light of the history of *Catechu* in *tambāla* recorded above the following notes from the article on *Catechu* in the *Hobson-Jobson* (London, 1903, pp. 173-174) would be found interesting :—

3. In the *Bodhiyanti-guṭhāyaprasaṅga* (Mysore, 1920, P. 371—*Prasna* V, Chap. 7—*Yaneshthi-homa*) worship of *अमृतक* (betel-nut tree) is prescribed (“अमृतकं चर्चयेत्”) This last possibly belongs to 3rd or 4th Century A.D. (See p. XXIV of P. Harting's Edition of *Selections* from this text).

CATECHU also **CUTCH** and **CAUT** — An astringent extract from the wood of several species of *Acacia* (*Acacia Catechu* (the *Khair*, and *Acacia Suma*, Kurz, A.C. *Sundra* D.C. and probably more). The extract is called in H. *Kajh* (Skt. *kyath* 'to decoct') but the two first commercial names which we have given are doubtless taken from the southern forms of the word e.g. *Can. Kachhu*, *Tam. Kasu*, *Malay. Kachhu*. De orta, whose judgments are always worthy of respect, considered it to be the *lycium* of the ancients and always applied that name to it; but Dr. Royle has shown that *lycium* was an extract from certain species of *berberis*, known in the *buzars* as *rasor*. *Cutch* is first mentioned by Barbosa among the drugs imported into Malacca. But it remained unknown in Europe till brought from Japan about the middle of the 17th Century.

Usages : A.D. 1516 — "drugs from Cambay . *Cacho*" — Barbosa, 191.

A.D. 1554 — "... Cate ... (at Ormauz) they call *Cacho*" — A. Nunes, 22.

A.D. 1563 — "... the wood vulgarly called *Cate*" — Garcia f. 125.

A.D. 1578 — "The Indians use this *Cate* mixt with *Areca* and with *Betel* and by itself without other mixture" — *Acosta Tract* , 150.

A.D. 1585 — "Sasseti mentions *Catu* as derived from the *Khadira* tree i.e. in modern Hindi *Khair* (Skt. *Khadira*).

A.D. 1616 — "*Catcha*"
— Foster, *Letters*, 127.

A.D. 1617 — "*Cacha*" (drug)
— Cook's *Diary*, i. 294.

A.D. 1759 — "*Hortal* and *Cotch*, Earth-oil and wood oil."
— *List of Burma Products etc.*, *Oriental Report* i, 109.

C.A.D. 1760 — "To these three articles (betel, areca and chunam) is often added for luxury what they call *Cachoonda*, a Japan-earth which from perfumes and other mixtures, chiefly manufactured at Goa, receives such improvement as to be sold to advantage when reimported to Japan... Another addition too they use of what they call *Catchoo*, being a blackish granulated perfumed composition."
— *Grose*, i, 238.

A.D. 1813 — The peasants manufacture *Catechu* or *terra Japonica* from the *Keiri* (*Khair*) tree (*Mimosa Catechu*) which

grows wild on the hills of *Konkana* but in no other part of the Indian Peninsula" (erroneous)

—*Forbes Or. Mem.* i. 303 (2nd Ed. i. 193).

(17) The *Khadira* plant has a great antiquity and sanctity. In the *Rigveda* (Book III, Hymn 53) Indra is invoked as follows :—

19. "Enclose thee in the heart of Khayar (*Khadira*) timber, in the cat wrought of *Simsapa* put firmness" (Griffith's Trans. Vol. I, 1896, p. 375).

Griffith's Note :—"Khayar-timber" : the hard wood of *Khadira*, or *Acacia Catechu* of which the pin of the axle was made. *Simsapa* : *Dalbergia Sisu*, also a common timber tree.

It would require a special monograph to trace the history of the *Khadira* tree from the time of the *Rigveda* upto the present day. This tree had great sanctity in ancient Indian sacrificial ritual as the sacrificial post was made of *Khadira* (*Khadira-yūpa*). K. uṭīya in his *Arthashastra* (Chap. XVII of Book II on Superintendent of Forest Produce, p. 107 of Eng. trans. by Shamashastry) mentions among forest products (1) *Khadira* (*Mimosa Catechu*) and (2) *Somavalka* which is white *Khadira* (see p. 625 of *Aṣṭāṅgahṛdayakośa* by K. M. Vaidya, 1936 — article on *Somavalka* mentioned in the *Sūtrasthāna* of the *Aṣṭāṅgahṛdaya*). The history of the economic products of India on the strength of Indian sources has not yet been studied systematically. Such history will have a respectable place in any comprehensive history of Indian Culture when it comes to be written. For this purpose each of these products must be studied separately from the historical and cultural point of view.

(18) *Berthold Laufer* in his *Sino-Iranica* (Chicago, 1919, p. 481) refers incidentally to *Catechu* as follows :—

"It is not intelligible to me why Hirth says that in the Ming dynasty (A.D. 1368-1644) *lu-wei* "was, as it is now, *Catechu* a product of the *Acacia Catechu* (Sanskrit *Khadira*)." No authority for this theory is cited; but this is quite impossible as *Catechu* or *Cutch* was well known to the Chinese under the names *er-Ca* or *hai'r-Ca*" See *Stuart, Chinese Materia Medica*, p. 2; and *Laufer, Loan Words in Tibetan*, (No. 107, where the history of these words is traced).

6. See list of Chinese dynasties with dates at the end of *Indian Literature in China and the Far East* by P. K. Mukerji, Calcutta, 1931 (o. 4 of the list).

(19) In Section 13 of Chap. 11 of the *Cikitsasthāna* of the *Suśrutasamhita* (N. S. Press, Bombay, 1938, p. 450) the author describes the method of gathering the juice of *Khadira* (*Acacia Catechu*) directly from the tree as follows :—

“अतः खदिरविधानमुपदेक्ष्यामः—प्रशस्तदेशजातम् अनुपहतं मध्यमवयसं खदिरं परितः स्नानयित्वा तस्य मध्यमं मूलं हित्वा अथोमयं कुम्भं तस्मिन् अन्तरे निदध्याद् यथा रसमहृष्टमवशो भवति, ततः तं गोमयमृदा अवलिप्तं अवकीर्य हन्यते गोमयमिश्रेः आदोषयेद् यथा अस्व दक्ष्मामास्य रसः सवति अथस्तात्, तद् यदा जानीयात् पूर्णं भाजनम् इति, अथ एनं उद्धृत्य परित्याज्य रसं अन्यस्मिन्वाश्रे निषाद्य अनुगुप्तं निदध्यात् etc.”

The *Khadira-vidhāna* or the method of gathering juice of *Catechu* prescribed above was as follows :— A *Khadira* tree growing on good ground and of middle age was selected and ground about its bottom was dug out. A cut was then made in its central root and a pitcher of iron or bronze (*ayas*) was so placed underneath as to admit the exuding juice. The pitcher was then besmeared with a mixture of cow-dung and earth and later kept in the midst of fire produced from (dried) cow-dung and other fuel. When the juice had boiled over, the pitcher was lifted up and the juice poured in a separate pot and kept properly covered.

The above method of gathering the juice from a *Khadira* tree so graphically described by *Suśruta* gives us a good glimpse of the processes employed by ancient Indians in the manufacture of herbal medicines.

(20) The *Yogaratanakara* (Ānandaśrama Sanskrit Series, Poona, 1900) is a voluminous medical compendium compiled between c.A.D. 1650 and 1725 as I have proved in my article on its date (Pages 154-156 of the *Bharattiya Vidya*, Bombay, 1943, Vol. IV). It contains a long extract of about 20 verses on *tāmbūla* (Verses 58-79 on page 35). The ingredients of *tāmbūla* mentioned in these verses are as follows :—(1) पूरा (betel-nut), (2) कर्पूर (camphor), (3) कुल्लूरी (musk), (4) लवङ्ग (clove), (5) तुमनस् (nutmeg), (6) ताम्बूलपत्र or पत्रं (betel-leaf), which should be पाण्डुर (whitish yellow), the betel leaf from *Vangadeta* (Bengal) was the best (वङ्गदेशोद्भवं पत्रं परं कटूरं श्रेष्ठम्”), (7) *Catechu* (*Khadira*), (8) lime or chunam (*Cārṇa*). The verses pertaining to *Cārṇa* and *Khadira* are as follows :—

“खदिरः कफपित्तमूत्रार्थं वातकलापनुत् ।

स योगसिद्धिर्दोषघ्नं लौघनस्यं करोति च ॥ ७१ ॥

पूराणि प्रमाते स्थानमप्याहो कार्वा द्राविडम् ।

बुद्धांश्च निषाद्य तु वाग्मूत्रं मल्लेशेहदा ॥ ७२ ॥”

The properties of *tobacco* (तमाक्षु) are recorded in 7 verses on pp. 17-18. At present some people chew tobacco powder along with *tambala* or separately. Verse 4 tells us that the use of tobacco is a remedy against diseases of the teeth (दन्तदक्षयमनं) and that it is a germicide (किमिच्छन्नादिनाशनं).

The foregoing notes are sufficient to prove conclusively the use of *Corpa* (lime) and *Catechu* (*Khadira*) as essential ingredients of *tambala* for about 2000 years say from the first century of the Christian era upto the present day. Further evidence on this topic has been gathered by me and I hope to record it in a subsequent paper.

Appendix

The history of the use of *tambala* in countries outside India must be studied critically with a view to understanding the spread of its use in India many years before c. A. D. 400. In this connection I made inquiries of my friend Mademoiselle S. Karpeles, Secretary of Ecole Française d'Extrême-orient at Hanoi (Indo-China) and sent to her my paper on *Indian Nut-Cracker*.⁷ She replied promptly in her letter of 16th March 1949 as follows :—

"Here is the name of the *Nut-Cracker*" :

Laotian — "MITSANAK"

Vietnamese — "DAO DẤU"

Cambodian — "PRANAK"

The habit of *chewing betel* is very ancient and current throughout the whole Peninsula and herewith a story about its origin found in old Vietnamese books translated into French. It is Monsieur TRAN HAM TAN; who took the trouble to find it out."

On getting the above story about the origin of *tambala* I got it translated into English by my friend Dr. R. G. Harshe, Registrar, Deccan College Research Institute, Poona. This English translation is given below. I take this opportunity of recording my best thanks to Miss Karpeles, Mr. Tran Ham Tan and Dr. Harshe for their hearty co-operation with me in the present inquiry about the history of *tambala* in Greater India.

7. Prof. R. M. Bhosari has drawn my attention to a genuine Marathi word for the *Nut-Cracker* viz. *पुष्पक* (Puspaka) mentioned in a Mahanubhava Marathi text of the 13th Century viz. *महानुभाव* (edited by H. N. Nene—पुष्पक, p. 100).

The Life-story of Tan and Lang

(by Mr. Tran Ham Tan, Hanoi)

Formerly there lived a Prince, Quan-lang, who had an imposing stature. He received the title of "Marquis of Cao" as title of nobility. Since then he took *Cao* as the family name. His two sons *Tan* and *Lang* resembled each other so much that one could not distinguish the elder from the younger. At the age of 17 or 18 they became orphans and went together to seek a preceptor for teaching them religion and philosophy. The daughter of their preceptor *Lân Huyền* was also of 17 or 18 years of age. When she saw the two brothers she fell in love with them. Wishing to marry one of them she did not know as to who was the elder and who the younger of the two. She gave both of them a single cup of meat-soup and only one pair of sticks in order to know the elder and the younger. The junior passed all these things immediately to the senior. She then requested her parents to marry her to the elder one. The couple sometimes lived away from their little brother. The younger brother felt it very much and saying to himself that his elder brother being in love with his wife had forgotten his brother on that account and without informing his elder brother he returned to the paternal house. Coming to a deep stream at which there was no ferry he sat all alone and wept grievously and died; then his dead-body was transformed into a tree: the *areca*.

When the elder one did not see any longer his younger brother he abandoned his wife in order to go in pursuit of him; coming to the place where his younger brother had died, he threw himself on the tree (i.e. *areca*) and died; his dead body was transformed into a huge stone, attached to the trunk of this tree. When the young wife marked the disappearance of her husband, she went in his pursuit; coming to the place she learnt that her husband was already dead, whereupon she threw herself on the stone and embraced it till her death. She was transformed into a *Creeping stick* which braided over the tree and the stone and from which were produced the odoriferous (*sweet-smelling*) leaves. They were the *leaves of the betel*.

Their parents (relatives) came there very much distressed and built a temple in their honour. At the temple, the passers by offered to them the incense sticks, praised their brotherly love and the conjugal duty of the victims.

In the month of autumn the king Hung made a journey to this place. Seeing this temple with the tree surrounded by the creeping stalks he asked for its reason and being supplied with the information made the

fruit and the leaf to be brought to him. He chewed them and spat its juice on the stone which was of a red colour and which emitted a good smell. The king returned taking with him a fruit of areca and a leaf of betel prepared with a little lime he chewed the betel and the areca-nut. He even ordered that these newly discovered plants be planted in his kingdom and declared that at marriages and feasts one ought to prepare a present consisting of the betel leaves and the nuts of areca.³

[This took place under the dynasty of the Hung-Vuong — (280-258 B.C.)]

3. In India also we distribute *Pan-Supari* (betel-leaf and betel-nut) to all guests at marriages, feasts and all social and cordial functions. Do we owe this custom to Indo-China and other countries adjacent to India?

20. The Tāmbūlakalpasaṃgraha of Nṛsimhabhaṭṭa and its date —

Later than c. A. D. 1350*

My friend Shri J. S. Pade has recently published in the *Journal of the Oriental Institute, Baroda*, the text of a work on *Tāmbūla* called the *Tāmbūlamanjari*¹, which contains a collection of varied verses about *Tāmbūla* from numerous texts, which reveal the social, religious and cultural history of the habit of chewing *Tāmbūla* (betel-leaf and nut etc.) acquired by the Aryans in India about 2000 years ago. According to Shri Pade the *Tāmbūlamanjari* is a very late work as it quotes from the *Saubhāgya-Kalpadruma* of Acyutarāya Modak (A. D. 1778-1833)².

Texts mainly devoted to a study of *Tāmbūla* are very rare. Consequently all lovers of the history of *Tāmbūla* like myself were rejoiced to read the text of the *Tāmbūlamanjari* as edited by Shri Pade on the basis of a rare MS in the library of the Oriental Institute, Baroda. While reading this text, I was reminded of another text on *Tāmbūla*, a MS of which is available in the library of the Asiatic Society of Bengal, Calcutta. This text is called the *Tāmbūla-Kalpa-Saṃgraha* by Nṛsimhabhaṭṭa. The MS of this text is in the Govt. collection of the Asiatic Society (No. 8238). I acquired a copy of this MS for the B. O. R. Institute in 1945. The MS begins as follows :—

“ श्रीगणेशाय नमः ऋष तांबूलकल्पसंग्रहो लिख्यते ।
तन्मुखं वेदविभ्रष्टं तांबूलरसमिति ।
सुमाधितपरिभ्रष्टं तन्मुखं विलमुच्यते ॥ ” etc.

The MS ends as follows :—

“ इति श्रीमन्त्रिसिंहसट्टविरचिततांबूलकल्पसंग्रहः समाप्तः । ”

No information about the author of the work viz. Nṛsimhabhaṭṭa, mentioned in the colophon, is given in the body of the text.

* Poona Orientalist, Vol. XVIII, Nov. 1-4, pp. 19-21.

1. M. S. University Oriental Series No. 3, 1952.

2. See p. 6 of *Madhyamagatā Caritra-Kaṇṇa* by S. Chitrav Shastri, Poona, 1937.

References to earlier authors and works given in this work are as follows :—

- (1) मार्कण्डेयपुराणे —fol. 1 (“भूयोऽप्याचार्य कर्तव्यं etc.” इति वशिष्ठः)
- (2) वशिष्ठः —fol. 1 (दत्तव्यप्रसंख्यामाह वशिष्ठः)—तृतीयले-संख्यामाह वशिष्ठः
- (3) स्मृतिर्न जयाम् —fol. 2 (पुण्यत्रयमाहं)
- (4) वशिष्ठः —fol. 2 (“अग्निपाय मुले पर्णं etc.”)
- (5) भरद्वाजः —fol. 4 (“चतुर्वारममुक्त्वा तु etc.”)
- (6) वशिष्ठः —fol. 4 (“पर्णमुले मवेद स्वाधिः etc.”)
- (7) वैद्यः —fol. 5 (“अप्रतः श्रीयेशोमुले etc.”)—verse about the 13 *gunas* of तांबूलः —“तांबूलं कटुतीक्ष्णं...स्वर्गेऽपि ते दुर्लभाः”
- (8) वैद्यः —fol. 5 (“तांबूलपत्राणि निदति वार्तं etc.”)
- (9) आश्वलायनाचार्यः —fol. 6 (“विद्याकामोनिशं रत्नौ etc.”)
- (10) वैद्यः —fol. 5 (“तांबूलं रक्त्पित्तात्यं etc.”)
- (11) वशिष्ठः —fol. 6 (“यती च ब्रह्मचारी च etc.”)
- (12) आश्वलायनाचार्यः —fol. 7 (“यतेश्च विधवायाश्च etc.”)
- (13) वैद्यः —fol. 7 (“समास्वादिततांबूलो etc.”)
- (14) दत्तः —fol. 9 (“युक्त्वा तु सुखमाश्वाय etc.”)
- (15) अग्निः —fol. 9 (“इतिहासपुराणानि etc.”)
- (16) व्यासः —fol. 9 (“इतिहासपुराणान्याम् etc.”)
- (17) विज्ञानेश्वरीये —fol. 9 (“अदःशेषं समासीत etc.”)
- (18) स्मृतिचंद्रिकायां कात्यायनः —fol. 10 (“सायं प्रातर्वैश्वदेवः etc.”)
- (19) हेमाद्रौ —fol. 10 (“रात्रौ दानं कर्त्तव्यम् etc.”)
- (20) देवलः —fol. 10 (“राहुदर्शनं संक्रांति etc.”)
- (21) बृहद्वशिष्ठः —fol. 10 (“प्रहृष्टोद्ब्रह्मं वाति etc.”)
- (22) संमदे —fol. 11 (“द्वुताग्निं चंदितगुरुः etc.”)
- (23) वैद्यः —fol. 11 (“प्रात राशीत्य जीर्णैः etc.”)
- (24) शततप्तः —fol. 12 (“रात्रौ धानादधिः सक्नुन् etc.”)

The only reference of chronological value in the above list of references is No. 19—*Hemādri*. The quotation is possibly taken from Hemādri's *Caturvarṇa—Cintāmaṇi*. As Hemādri, who was the minister of the Yādava Kings of Devagiri, flourished between c. A. D. 1260 and 1275, we may fix the date of the *Tambula-Kalpa-Saṃgraha* of Nṛsiṃhabhaṭṭa to a period later than c. A. D. 1350. The references to *स्मृतिचंद्रिका* (No. 18) and the *स्मृतिमंजरी* (No. 3) are difficult to be indentified as there are many works of these titles recorded by Dr. P. V. Kane in his list of works on *Dharmaśāstra* in Vol. I of his *History of Dharmaśāstra* Poona, (1930). It

is also difficult to identify the references to "वेद्य" in the present work as the particular work on medicine, from which quotations are given under this reference, is not specified. The reference to विद्यानेश्वरीय (No. 17) is evidently to a work of विद्यानेश्वर, the author of the *Mitākṣara* commentary on the *Yajñavalkyasmṛiti*, who flourished between c. A. D. 1070 and 1100. This reference, however, does not enable us to push forward the earlier limit of c. A. D. 1350 fixed by me for the *Tambūla-Kalpa-Saṃgraha*. The references to the *Smṛtis* of बलिष्ठ, भरद्वाज etc. are not also of any chronological value. As no quotations from very late works are given by Nṛsiṃhabhaṭṭa I am inclined to believe that the *Tambūla-Kalpa-Saṃgraha* is earlier than the *Tambūlamanjari* (later than A. D. 1819) edited by Shri J. S. Pade.

21. Indian Nut-Cracker

—A. D. 1300.1800

Some time ago I had occasion to see many old nut-crackers,¹ presumably of the Peshwa period, displayed at an exhibition arranged by the Bharata Itihāsa Samshodhaka Mandala, Poona. These nut-crackers roused my curiosity as I have been collecting references from varied sources, bearing on the history of *Tambula*, for the last few years. In India we use the term "nut-cracker" for the instrument used for breaking betel-nuts. Though we can establish the antiquity of the betel-nut for about 2000 years on the strength of Sanskrit sources we have no evidence to prove the antiquity of the nut-cracker for such a long period. In fact I have not come across any reference to nut-cracker in the Sanskrit references or even in non-Sanskrit references gathered by me. It is, therefore, necessary to collect and record references to the nut-cracker in literary sources with a view to establishing its history on the basis of data-ble evidence.

In the *Shorter Oxford English Dictionary* (p. 1346) we find the word "nut-crack" (A. D. 1570) and the word "nut-cracker" (A.D. 1548) explained as "An instrument for breaking the shells of nuts." The "nuts" referred to here do not mean the betel-nuts as the habit of chewing betel-nuts was current only in India and some adjacent countries at this time, but not in England.

At present the term for the "Nut Cracker" used for cutting betel nuts is "Adkitta" (अडकित्ता). In the Marathi dictionary *Sabdakosa* (by Date and Karve) p. 34, the word अडकित्ता is recorded and explained as the instrument for cutting slices of betel-nuts but no usages of the word have been recorded. This dictionary derives the word from the Canarese word अडकेतु (अडके = betel-nut and कोट्टु = cutting or chopping off). It is, there-

* B. I. S. Mandal Quarterly, 1948, pp. 8-14

1. These *Nut-Crackers* belonged to Mr. Kelkar of Poona, who has made a nice collection of antiquarian objects. One type of these nut-crackers displayed at the exhibition was termed *Mithuna* as one arm of the nut-cracker had the shape of a man, while the other arm had the shape of a woman. When these two arms were brought together, they represented despair embracing each other. [This *romantic Nut-Cracker* must have been once very common in the Deccan]. The *Tambula* has been a gay associate of the Aryans in India for about 2000 years and this romantic nut-cracker, obviously a drawing-room companion, appears to be the crowning glory of this gay association.

fore, possible to get some references to अरकित्त or nut-cracker in Canarese sources and I request Canarese scholars to record these references with their chronology. I shall here record some references which I recently came across :— Mention of अरकित्त

c. A. D. 1676 } by Raghunatha Pandita in his *Rajavyavaharakosa*
composed by the order of Shivaji the great, in the following extract :—

भेषजम् (p. 152 of शिवचरित्रप्रदीप, B. I. S. Mandala, Poona. 1925).

पट्टी स्यादल्पतांबूलः सैव वर्ग इतीयते ॥ ६५ ॥

तंबूलदान पर्यायः करङ्कः परिकीर्तितः ।

चुनासः स्यात्पूर्णापात्रं पूर्यस्फोटी तथाऽरकित्ता ॥ ६६ ॥

चूना^१ नाम भक्षेयवृत्तं दृष्ट्वा स्यात्पर्यवेष्टनम् ।

In the पण्यपत्रम् (p. 174) we get a reference to the seller of betel-nuts as follows :—

“शाम्भलिकस्तु तामोळी”

It is clear from the above reference to अरकित्त (explained by the newly coined Sanskrit word पूर्यस्फोटी) that the term अरकित्त for nut-cracker was current in the Marathi language in the 17th century.

Capt. Edward Moor² in his *Narrative* (London, 1894) records an elaborate note (pp. 373-378) on the Indian habit of eating betel. In this note he twice refers to अरकित्त (without mentioning this Canarese term as follows :—

1. Vide *Hobson-Jobson* by Yule and Burnell. London, 1903, p. 218—“CHUNAM. १. Prepared lime, also especially used for fine polished plaster. Forms of this word occur both in Dravidian languages and Hindi. In the latter *Chuna* is from Skt. *Chārtta* powder; in the former it is some-what uncertain, whether the word is or is not, an old derivative from the Sanskrit. In the first of the following quotations the word used seems taken from the *Malayal* “Chuppomba”, Tam. *Shuppombu*”.

Usages :—A. D. 1510 (Cionama) see *Verthema*, 144, 1563 (Chuna). c. 1610 (Chunam), 1:14 (Chunah), 1673 (Chinam), 1687 (Chenam), 1689 (Chinam), 1750-1760 (Chundan) 1763 (Chunam), 1809 (Chunam).

2. Moor mentions following items in his note on betel :—

(1) *Atr* (अरक), (2) *Aru* tree (in Malabar tongue), (3) Burnt and pulverised betel-nut, much esteemed as tooth-powder, (4) *Pandan* (पण्डन) made of gold, (5) Tavernier's mention of a *Pandan* worth Rs. 40,000. (6) Vessel full of *gul-aal*, rosewater for sprinkling over guests (*Atr* of roses पुलाही अरक presented to guests), (7) *Beerac*, (बिरक), (8) Spoon for taking *atr* out of a pot, (9) Chinese custom of using *opium* and *betel-nut*, (10) a city in India with 30,000 shops of betel-sellers, (11). Account of Abbe Raynal about *Betal* (*History of East and West Indias*, Vol. I. p. 166).

Page 372—"The *beerae* (बिड़ी or बिठा) is composed of the *Soopaeree* commonly called betel,⁴ cut by an instrument for the purpose into thin slices, two or three of which with a cardamom, and a every small quantity of *chuna* is enclosed in a *paan* or leaf, and fastened by a clove in a triangular form."

Page 375 — The utensil (पानदान) thus described is placed on a silver, which also contains the leaf, the nuts whole, and the instrument slicing them.

The *Hobson-Jobson* (pp. 913-914) contains the following short article on ताम्बूल :—

"**TEMBOOL**, Betel-leaf, skt. *tambala* adopted in Pers. as *tambala* and in Ar. al *tambal* [It gives its name to the *Tambolis*⁴ or *Tamolils*, sellers of betel in N. Indian bazars.]

1298—"All the people of this city, as well as the rest of India have a custom of perpetually keeping in the mouth a certain leaf called *Tembul*."

Marco Polo. ii, 358.

1498—And he held in his left hand a very great cup of gold as high as a half almude pot.....into which he spat a certain herb which the men of this country chew for solace, and which herb they call *atambhor*."

—Roteiro de V. da Gama, 59

4. *Maradi* the Arab geographer (c. A. D. 943) mentions *bejel-nuts* in the following context (Page 277 of *Hobson-Jobson*) :—

"The territories of this Prince (The Maharaja of the I-les) produce all sorts of spicic aromatics.....The exports are *camphor*, *lign-aloes*, *clove*, *sandal-wood*, *Betel-nut*, *nutmeg*, *cardamom*, *cubeb*.—*Maradi*, i 341 seq.

5. The *Tāmbūla* or ताम्बूलिक is mentioned in the *Kāmasūtra* of Vātsyāyana :—

"रक्त-नापित-पांसाकार-नाभिक-सौरिक-भिलुक-गोपालक-ताम्बूलिक-सौवर्णिक-
संस्पर्ध-विट-विवृणकादयः मित्राणि ।"

(See p. 72 of *Kāmasūtra*, ed. by Kedarnatha, N. S. Press, 1900. *Adhikaraṇa* I, Chap. 5)

"Friendship may be formed with washermen, barbers, florists, perfumers, publicans, musicians, cowherds, betel and chewing material sellers, goldsmiths, *piṣhamardas*, *bīṣas* and professional jesters or *Vidvāṇakas*. (Vide p. 46 of Eng. trans. of the *Kāmasūtra* by Bana and Ghosh, Calcutta. 1945).

There are numerous references to ताम्बूल in the *Kāmasūtra*. They show that the habit of chewing ताम्बूल was an established feature of the culture of the period. The date of the *Kāmasūtra* is c. A. D. 700 (according to Bhandarkar) and c. A. D. 500 (according to Keith). The poet Bhaṭṭa (A. D. 300) had a ताम्बूलदायक among his early companions.

1563 —“Only you should know that Avicenna calls the betre (*betel*) **tambul**, which seems a word somewhat corrupted, since every body pronounces it as *tambul*, and not *tambul*,”

—Garcia. f 37h.

In the above quotations about *tambula* we do not find any reference to the *adkhita* or *nut-cracker*.

As regards the habit of chewing *Tambala* adopted by foreigners who settled in India I may quote here the following remarks of Dr. A. B. M. Habibullah in his *Foundation of Muslim Rule in India* (A. D. 1200-1290), Lahore, 1945 :—

Page 289 —“ But to escape the environmental influence was equally difficult ; the *Indian Turk* was not even circumstantially equipped to attempt it *Chewing the betel leaf*, a peculiarly Indian habit found its way early among the nobles and *Barani* notes the excessive addiction to it of Balban's *ariz*. Under the Tughluqs Ibn Battuta noticed another Indian Custom⁶ of offering the *bira* of *pan* to the bride as a *part* of the marriage ceremony.”

Curiously enough the Europeans settling in India have not adopted the habit of eating *Tambala* owing to their insular attitude. On the contrary every European who travelled in India and has left a record of his travel, has wondered at this peculiar habit and has made a note of it with sometimes elaborate descriptions. I shall deal with all these descriptions in some subsequent paper.

In concluding this short paper on the *Nut-Cracker* I have to request brother-scholars to publish references to it in Indian or Foreign sources before or after A.D. 1600.

P.S.—Since the above paper was drafted I have received the following information about the *Nut-Cracker* from my scholar-friends, I have great pleasure in recording it below most gratefully :—

6 Habibullah notes further the following points with regard to the Indian influence on the Turks : (1) Adoption by even high-born Muslims of Turkish descent of Indian names such as *Chajju*, *Kachchan*, *Hamudraja* etc.. (2) Use of Indian terms (in daily conversation) e.g. *Barani* uses the term *barah Kal* (बरह काल) the rainy season ; (3) *Dowries* paid to Muslim girls by *Firoz Tughluq* : this was purely a Hindu inspired custom as “Muslim law knows of no money payable by the bride” ; (4) Employment of professional *courtesans* for musical and dancing performances. This was inspired by the Indian practice ; for in Central Asia and in Arabian countries, free-born professional musician of the female sex was a rare social phenomenon.

(1) Diwan Bahadur K. M. Jhaveri, M.A. LL.B., J. P., Bombay, writes on 5-12-1946 :—

"Nut-Crackers (ordinary i.e. small ones) we call *सूरी* in Gujarat. The big ones, which professional Pānvalās use, we call *सूरो*."

(2) Principal K. K. Handiqui, M.A. of the Jorhat College, Jorhat (Assam) writes on 24-12-1946 :—

"There is no Assamese word for nut-cracker." It is called in Bengali *Yānti* (যাঁতি). This is the information given by one of our Professors of Sanskrit, who is a Bengali. We call a mill stone *यात* in Assamese, pronouncing it as *jat*. It is called *याता* in Bengal. All these words come from Sanskrit *यन्त्र*.

There is a word for "nut-cracker" prevalent in Assam. It is *Carota* but must be a corruption or variation of some non-Assamese word. The fact is that nut-crackers are not in use among the Assamese. We use the green and ripe varieties⁷ of betel, slicing them with knives. The nut-cracker is required only for dried betel ((*Supari*), which is not in favour in Assamese homes."

(3) Mr. M.P. Wali, M.A. of Belgaum writes on 23-11-1946 :—

"As regards the word *अडकित्ता* I may say that it is a pure Kannaḍa word and has crept in Marathi language in a corrupt form. The word is formed of two words *Adaki* (=areca nut) and *Ottu* (=lit. to press or crack). The correct pronunciation is *Adakottu*. I can very safely say that the Marathi language has no word for it. It is taken from Kannaḍa and is being used in a corrupt form as *अडकित्ता*. Another synonym in Kannaḍa for this word is *Adake gatti* which is also formed of two words, *Adake*⁸ (=areca nut) and *Katti* (a knife).

The earliest reference to the words *अडकोत्तु* and *अडकेगति* occurs in the middle Halagannada work, *Basavapurāṇa* of Bhlma-Kavi, composed in 1369 A.D."

7. In some parts of the Konkan, where betel-nut gardens are grown people use green and ripe betel, which is available easily. These nut-crackers are made of steel sometimes by local black-smiths. In the Poona market we find brass nut-crackers with steel-blades as also some of steel.

8. The word "*adakeya*" (of areca nuts) is found in old Kannaḍa inscription of A. D. 150-10 (Epi. Ind. IX, 22) at Udiyavara in South Kanara Dist. Madras Province. (Vide p. 116 of *Historical Grammar of Old Kannaḍa* by C. S. Gai, Poona, 1946 (Deccan College Series))

In view of the above evidence the history of the nut-cracker is definitely established for about 600 years (A.D. 1350-1947). I have, therefore, to thank Mr. Wali especially for the above reference, which takes back the history of the nut-cracker from the 17th century to the 14th century. I await still earlier references to the nut-cracker from any sources whatsoever, Sanskrit or non-Sanskrit.

(4) Prof. B. D. Verma of the Fergusson College, who hails from the U. P. informs me that the name for *nut-cracker* current there is "*Sarautā*" (सरौता). I wonder if "*Sarautā*" of U. P. has any connection with "*Carota*" of Assam mentioned by Prin. Handiqui.

22. Some Words for the Nut-Cracker*

I have been studying the history of the use of *tambāla* (betel-nut, betel-leaves, Catechu and Chunam etc.) in India and have published a few papers on this history. The references to *tambāla* in Sanskrit works are found in plenty but unfortunately there is no mention in these references of the instrument used for cutting or breaking the betel-nut before it was used for chewing purposes with or without the other ingredients. We, therefore, fail to understand the exact nature of the instrument used by our ancestors and the word or words for this instrument, Sanskrit or non-Sanskrit, current in India since the use of *tambāla* was introduced into India about 2000 years ago as proved by the literary sources studied by me.

In my paper on the *Indian Nut-Cracker*¹ I have recorded the following words for the *Nut-Cracker* from datable and non-datable literary sources:—

(1) *adkitta*—This is a word for Nut-Cracker in Marathi at present. It is recorded accordingly in the *Śabdakośa* by Y. R. Date and C. G. Karve, who state that it is derived from the Canarese word "*adkottu*".

(2) *adikita* or *adkitta*=*paga-sphoṭi* or nut-breaker according to the *Rajavyavaharakośa* of Raghunātha Paṇḍita (c. A. D. 1676). Evidently this glossary or lexicon of Non-Marathi words current in the Marathi language in the 17th century treats the word *adkita* as a non-Marathi word and explains it by a happy coinage as "*paga-sphoṭi*" (nut-breaker). I have not come across the word "*paga-sphoṭi*" in any Sanskrit work, ancient or modern, in the sense of nut-cracker or otherwise.

(3) *pophal-phodnā*=nut-breaker. This purely Marathi word was current in the Marathi language in the 13th Century A. D. It is found in the *Līlācaritra* (c. A. D. 1250) *Uttarardha*, a *Mahanubhava* Marathi work, edited by Nene and Bhavalkar. My attention was drawn to it by Prof. Bhusari of the Osmania University, Hyderabad (Deccan). I wonder how

**Vak*, No. 1 (Dec. 1951), pp. 38-41.

1. These papers deal with the History of *tambāla* outside India (*Jour. of Travancore University MSS Library*, Jan.-April 1950, pp. 1-14), History of Lime and Catechu in *tambāla* (*Sardharasthali Volume*, Asiatic Society, Bombay, 1958). Beliefs associated with the number of ingredients in *tambāla* (*Journal of the Gauhati University*). History of *tambāla* with thirteen qualities (*Annals*, B. O. R. Institute).

2. *B. I. S. Mandal Quarterly*, Poona, 1948, pp. 8-14.

this purely Marathi word, which corresponds to "*paṛka-sphoṭi*" in meaning, disappeared from Marathi and its place was taken up by the Canarese word "*adhita*" or "*adhitta*", which has been current in Marathi for more than 350 years.

(4) The word *adhitta* is a pure Kannada word, which has crept in the Marathi language in a corrupt form. The word is formed of two words (1) *adaki* (= areca nut) and (2) *ottu* (= to press or crack). The correct pronunciation of the word is *adakottu*. Another synonym in Kannada language for this word is *adake-gatti*. This word also is formed of two words, (1) *adake* (= areca-nut) and (2) *Katti* (= a knife). The earliest references to *adhottu* and *adakegatti* occur in the middle Halagannada work, called the *Basavapurana* of Bhlma Kavi, composed in A. D. 1369.

(5) Small nut-crackers are called "*Sadi*" in Gujarat. Big ones used by professional *panvalas* (sellers of betel-nut and betel-leaf) are called "*Sado*."

(6) There is no Assamese word for nut-cracker. The Bengali word for nut-cracker is *yanti* (যাঁতি). A mill-stone is called *yat* in Assamese. *Yat* is pronounced as *jat*. It is called *yata* in Bengali. All these words are supposed to have been derived from Sanskrit "*yantra*." The word "*Carota*" for nut-cracker is prevalent in Assam. It may be a corruption or variation of some non-Assamese word. Nut-crackers are not in general use among the Assamese, who use green and ripe varieties of the betel-nut, slicing them with knives. The nut-cracker is required only for dried betel (*Supari*) which is not in favour in Assamese homes.

(7) It may be worthwhile studying the words for the nut-cracker current in Indo-China where the habit of chewing betel is very ancient and current to-day. Miss S. Karpeles of Hanoi in her letter to me dated 16th March 1949 reported to me the following words for the nut-cracker :—

(1) *Laotian*—"MIT SĀNAK"

(2) *Vietnamese*—"DAO DẪU"

(3) *Cambodian*—"PRĀNAK"

The antiquity of these words needs to be studied from the literary sources concerned.

(8) Apte in his English-Sanskrit Dictionary gives *Samdasaka* as the equivalent of a nut-cracker but in his Sanskrit-English Dictionary he equates *Samdasaka* or *Samdasaka* with a pair of tongs. I have found no usage of *Samdasaka* or *Samdasaka* in the sense of nut-cracker. On the contrary the following reference to *Samdasaka* in the sense of a pair of tongs used for extracting foreign particles from a body is perfectly clear :—

“तत्त्वविज्ञानसंक्षेपमादाय हृदयोदरात् ।
नानाविधपरामर्शश्लोकादयः कृतो मया ॥१॥ ”

(Vide p. 46 of *Aṣṭavakraḥ* ed. by H. R. Bhagawat, Poona, 1913.—
Chap. 19, verse 1).

(9) Bhaṭṭoji Dīksita (c. A. D. 1550-1620) in his comment on Paṇini's *Sūtra* 692 (“तृतीया तत्कृतायेन गुणवचनेन ॥२॥१०”) mentions “शङ्कुलाखण्डः” and explains it as “शङ्कुलया खण्डः शङ्कुलाखण्डः.” My friend Dr. V. S. Agrawala informs me that the Sanskrit word for the nut-cracker seems to be शङ्कुला and the earliest reference to it is in Patañjali's *Mahābhāṣya* (Kielhorn's Edition, Vol. I, pp. 360, 385 (“शङ्कुलया खण्डः शङ्कुलाखण्डः”). He further informs me that Oriental Pandits always tell their pupils to take “शङ्कुला” in the *Mahābhāṣya* in the sense of “nut-cracker.”

The antiquity of betel-chewing in India is about 2000 years old but it is doubtful if betel-chewing was current at the time of Patañjali (c. B. C. 150). We must, therefore, see if there is any evidence to support the Oriental Pandits in their equation “शङ्कुला=nut-cracker.” Recently I have sent for publication a paper³ on *Vidyāvilāsa* commentary by Śivarāma Tripaṭhin on the *Siddhanta-kaumudī*. In the MS of this Commentary available in the Sanskrit Pathashala, Rajapur (Shevade Collection) folio 16a, Śivarāma (c. A. D. 1700-1750) explains “शङ्कुला” as follows :—

“शङ्कुला क्षमुकादिभेदनसाधनं” (*Śaṅkula* is an instrument for breaking betel-nut etc.) This statement definitely proves that at least 250 years ago the word “शङ्कुला” was understood by Pandits in the sense of *betel-nut cracker*. The present Pandits are evidently following this tradition in equating “शङ्कुला” with “nut-cracker” as reported by Dr. Agrawala.

(10) In the absence of any pictorial representations of “*Śaṅkula*” we are unable to determine the exact form of this instrument for cutting or breaking used in the time of Patañjali (c. B. C. 150). As a result of my discussion in this matter with my friends at Nagpur I have received the following reply from my linguist friend Dr. Siddheshwar Varma dated 30th November 1950 :—

“Reference—Patañjali on *Śaṅkula*. We have compared both the passages concerned. The internal evidence from both these passages does

3. See p. 168 of *Siddhanta Kaumudī*, N. S. Press, Bombay, 1915. Evidently Bhaṭṭoji's comment on “शङ्कुला” is taken from the *Mahābhāṣya* of Patañjali (c. B. C. 150). The index to *Mahābhāṣya* (B. O. R. Institute edition) p. 1012, records the words “शङ्कुला” and “शङ्कुला खण्डः”.

4. This paper will appear in the *Adyar Library Bulletin*.

make it clear that *Sankula* is definitely a cutting instrument, but not an all-purpose one, for its inferiority to *Musala* in certain cases is pointed out. So, being sure that *Sankula*, as a cutting instrument, is not *Musala*, the question may arise whether it could be rendered as "Scissors." But as "*Kartari*" is a specific term for "Scissors" widely used by authorities like Caraka, Suśruta, etc., scissors could not be denoted by "*Sankula*," and being thus definitely a separate tool, *Sankula* seems to mean a *nut-cracker* here. The above conclusion, as kindly communicated to me by Shri K. N. Daveji is further corroborated by his reference to *Sabda Kalpadruma*, which renders *Sankula* as *utpala-patrika*, while Monier Williams also renders both these words as "a broad-bladed knife or lancet." Now a nut-cracker has a broad blade, jointed with a bent bar, with a pin (*Sanku*) at one end. This cutting blade can well be described as a *Sankula*, and in this sense a nut-cracker can certainly be called a *Sankula*—a pair of nippers. In this connection Hindi *Sarautā* (nut-cracker), which may be derived from *Sarapatraka*, may be noted. The Sanskrit etymology of the latter has been correctly given by *Ganaratnamahodadhi* sub voce (p. 228). Monier Williams has rendered it erroneously as an adjective only.

There are several other interesting items in connection with this item, but I hope the above lines have made it sufficiently clear that the passages do imply *nut-cracker* as the sense of *Sankula*. Dr. Raghu Vir says that *Sankula* should not be called *nut-cracker* but *nut-cutter* for "*nut-cracker* nowhere exists in India."

While thanking Dr. Varma and other friends who have helped me in this inquiry I have to request them as also those who are interested in this problem to record the usages of the word "*Sankula*" with a view to clarifying its meaning more decisively than what has been done in this paper.

23. History of the Spittoon in India*

While studying the history of *Tambala* in India I thought it necessary to trace the history of the different accessories generally used at present by habitual chewers of betel in India. Accordingly I published a paper on the *Indian Nut-cracker*¹, the history of which was traced by me up to about A.D. 1300. Another accessory of *Tambala* is the *Spittoon* or *Pukdān* which is used by habitual chewers of *Tambala* owing to the necessity of maintaining cleanliness in the home, which in the absence of a spittoon would be converted into a veritable spittoon owing to the excessive salivation in the mouth caused by the ingredients of *Tambala* such as the betel-leaf, cloves, nutmeg, chunam, catechu etc. The advocates of social hygiene in India have always deplored the pernicious habit of spitting on the street-pavements resorted to by the chewers of *Tambala*. A glance at the grounds in front of the shops of *Tambala* sellers will bear out the truth of this criticism as there is no shop of this kind in front of which you will not find the grounds disfigured by the red spittings of the chewers of *Tambala*. It was perhaps on this account that the chewing of *Tambala* in a public street was considered as a *duracāra* (bad habit) in all provinces of India² as recorded by a writer of the seventeenth century. The use of the spittoon in domestic life certainly shows a high sense of hygiene and the history of this use has a distinct place in the history of sanitation in India. We must, therefore, investigate and find out whether the use of the spittoon was introduced into Indian life and culture simultaneously with the introduction of *Tambala*³ or somewhat earlier than such introduction.

* *Annals* (B. O. R. Institute), Vol. XXXVI, pp. 204-214.

1. Vide pp. 8-14 of *Bharata Itihāsa Samśodhan Manḍal Quarterly*, 1948.

2. Varadarsija, a pupil of Bhaṭṭoji Dikṣita, observes in his *Gīroṭnupadāmaṅgalī* :-
"तबे ते रवे उल्लसत दृष्टवतः" । Vide p. 26 of Vol. VI, No. 2 (Feb. 1945) *Bharatiya Vidyā*.

3. In connection with my study of the history of *Tambala* I made inquiries with several friends about exhaustive and critical literature on the custom of betel-chewing. Among these friends Dr. A. N. Upadhye of Rajaram College, Kolhapur, was the only friend who drew my attention to the very important article on "*Romance of Betel-chewing*" (Appendix II to C. H. Tawney's translation of *Kathasaritsaṅga*, Vol. VIII, pages 237-319) by N. M. Penzer. I am thankful to Dr. Upadhye for drawing my attention to this elaborate article of 82 pages in which Penzer has collected useful data about the extent of the custom of betel-chewing, its exact nature, the numerous ceremonies in which betel plays a part and the significance of the custom from a linguistic and anthropological point of view.

In studying the history of the *appliances of Betel-chewing* we must take note of such appliances as are now deposited in our museums. Penzer in his article on the "*Romance of Betel-chewing*" devotes some pages to the description of such appliances (pp. 249-254 of Vol. VIII of Tawney's *Trans. of Kathasaritsagara*). I note some items from this description :—

Victoria and Albert Museum (London)—Room 8 (metal work)—

Case 5 —Brass "*sireh*"—boxes from Sumatra. Some with *svastika* designs carved on their sides.

Case 13 —Brass comband areca-nut cutter combined (from Tanjore). The portion forming the cutter represents a *map and a diminutive woman*.

—Pestle and mortar of brass,

Cases 14 and 17 —Sinhalese cutters and lime-boxes.

Cutters of steel (4½ to 11½ inches), inlaid with silver and encrusted with brass.—One cutter of the shape of a *dragon* with the head of a *bird*.

—*Chunam* cases of the size of old English watch-cases with chains.

—*Spatula* with a flat head ½ inch in breadth.

Wall cases 25 and 27 —*Nut cutters* inlaid with coloured glass, with handles of ivory, bone or pearl. Some with the shape of animals like horse, peacock etc.

Descriptions of *appliances* for betel-chewing in modern books :—

(1) *Mediaeval Sinhalese Art* by A. K. Coomaraswamy.

—*Plate XLVI* (illustrations of smaller specimens with descriptions on pp. 336-337).

—*Pages 238-239*—excellent description of a *Betel-bag*

—*Plates XXX-XXXIII*—illustrations of *betel-bags*, large and small, with hidden pockets, and embroidered in silk, having oval and square sizes.

(2) *Malay Royal Asiatic Society*, Vol. III, 1925, pp. 22, 28.

—*Betel-boxes* of solid gold mentioned in Malayan fairy stories.

According to Przyluski the word *Tambila* consists of the root-word *bala* and *tam*, which is a prefix. *Bala* corresponds to Austro-Asiatic (i.e. non-Indo-Aryan) *belu* and means "*something that is rolled*"; see for further details Przyluski's paper "*Emprunts Anaryens en Indo-Aryen*" in *Bulletin de la Soc. de Linguistique de Paris*, Vol. XXIV, 3rd Fasc. (No. 75), 1924, pages 255-58.

—Every Malay house has a betel box or *betel tray* fitted with requisites for chewing viz. cardamoms, cloves, catechu, lime and tobacco — a small case to hold betel-leaves, a metal *spatula* for spreading lime on these leaves and curiously shaped *scissors* for cutting *areca-nuts*.

- (3) *Oriental Silver work. Malay and Chinese* by H. Ling Roth, London, 1910. (Figures 3, 4, 5, 30-34, 38-47, 50-53, 57-62).

—Many illustrations of *bowls* to hold *areca-nuts*, *lime-boxes* (*Bekas Kapor*) *areca-nut boxes* (*chimbul*) and *betel-leaf holders* (*Bekas sirih*).

- (4) *Natives of Sarawak and British North Borneo* by H. Ling Roth, Vol. II, p. 39—Description of *betel-basket* worn by the Land-Dyak.

- (5) *Handbook to the Ethnographical collections* (in the British Museum).

—Several illustrations of *betel-chewing accessories* like *spatulae* from the Anchorite Islands, off the North Coast of New Guinea, some shaped like the tale of a lizard — examples from (south east) New Guinea Archipelago (p. 121) with designs of human figures and crocodiles.

—Illustrations of *betel-chewing apparatus* from Ceylon.

In the above account of the appliances for betel-chewing I don't find any references to the *spittoons*¹ with the history of which I am concerned in the present paper.

(1) The Marathi Dictionary *Śabdakoṣa* (by Y. R. Date and C. G. Karve, Poona, 1936 — Vol. V, p. 2004) records the words *Pikḍant*, *Pikḍant*, *Pikḍant*, *Pikḍan*, *Pikadharant*, *Pikapatra* etc. for the SPITTOON.

1. While discussing the history of the spittoon in India with my friend Prof. D.D. Kothambi I came to know from him that the ancient Romans used some bowls in which they used to vomit after heavy banquets. In this connection I read *Daily Life in Ancient Rome* by Jérôme Carcopino (Trans. E. O. Lorimer, London, 1916) Chapter IX— "Afternoon and evening." While describing the gluttony of the Romans the author observes :—

Pages 271-272— "Martial tells of more than one who simply clicked his fingers for a slave to bring him "a necessary vase," into which he "re-measured with accuracy the wine he had drunk from it", while the slave "guides his boozing master's drunken person." Finally it was not infrequent during the *convivia* to see priceless marble mosaics of the floor defiled with spitting".

As compared with this disgusting gluttony of the wealthy Rome which drained the resources of the Roman Empire and defiled the marble mosaics of the floor the Indian habit of spitting in the streets after chewing betel dwindles into insignificance.

The usages of some of these words recorded in this Dictionary as follows :—

- (1) पिकदान — Spittoon

“पिकदाने ऊर्ध्वमुत्ते ।
तांबूलपत्रे अतिमुत्ते ॥ ”

—Harivijaya 34.158

- (2) पिकचरखी — Spittoon (A. D. 1608-1649)

“तांबूलाची पिकचरखी ।
ते मी असे मुख पसकनी ॥ ”

—Tukārāma's *Gāthā*, 1746

- (3) पिकपात्र — Spittoon (A. D. 1599 — c. 1649)

“मृदुमवाळ पोटिणी ।
पिकपात्रे मलाफनी ॥ ”

—Muktesvara, *Ādiparva*, 49.17

In the first two usages recorded above the *spittoon* is associated with *Tambāla*. Saint Tukārāma and the poet Muktesvara of Mahārāṣṭra lived in the first half of the 17th century.

(2) In the lexicon of non-Sanskrit terms called the *Rajavargavarakośa* (Poona, 1880) composed by Raghunātha Paṇḍita by the order of Shivaji the Great about A. D. 1676 we find the words “*ṭikadāni*” (पीकदानी) and “*taṣṭa*” (तस्त) mentioned in the following extract :—

Page 3 (*Rajavarga*) verses 26-27 :—

“ तस्तं गण्डुषपात्रकम् ॥ २६ ॥
पीकदानो नामनी हे पतद्ग्राहकलाचिहे । ”

Here *ṭikadāni* is explained by the Sanskrit word *patadgraha* (spittoon) and *taṣṭa* is explained as *gandūṣapātraka* (a tray for washing the mouth in).

(3) In the lexicon of Persian terms called the *Pārasikhāṣanūsāna* (edited by Dr. Banarsidas Jain, Lahore, 1945) composed before *Sarnvat* 1600 (A. D. 1544) we find the word “तस्तरी” (*tastari*) in the sense of “*hasta-prakṣāḷaka*” i.e. wash-hand-basin in the following extract :—

Page 9— Chap. I, verse 79 —

“ तस्तरी श्रेका इत्यप्रवालकस्तया ॥ ७९ ॥ ”

It is clear from the foregoing references that the non-Sanskrit terms, *ṭikadāni*, *taṣṭa* (or *tastari*) were current in India in the 17th century or even earlier in the sense of *spittoon* and *wash-hand-basin* respectively.

(4) The *Hobson-Jobson* by Yule and Burnell (London, 1903) contains the following article on *Pigdaun* (spittoon) :—

Page 709 — “*PIGDAUN*, S. a Spittoon. Hind-*piḍān*. *Pikis* properly the expectorated juice of chewed betel.

c. A. D. 1665 — “ Servants ... to carry the *Picquedant* or *Spittoom*. Bernier, ed. Constable, 214. In 213 *Piquedans*¹.

A. D. 1673 — “The Rooms are spread with carpets as in India, and they have *Pigdans* or spitting pots of the Earth of this place, which is valued next to that of China, to void their spittle in”—*Fryer* 223.

A.D. 1684 —Hedges speaks of purchasing “*Spitting cup*”

—*Diary*, Hak. Soc. i, 149.

(5) The lexicon *Amarakoṣa* (ed. N. S. Press, Bombay, 1905) by *Amarasimha* (between A. D. 500 and 800) contains two words for the spittoon in the following extracts :—

Page 286 —*Kaṇḍa* II (*Brahmavarga* 7) verse 139 :—

.....प्रतिप्राहः पतद्ग्रहः”

Bhānuji Dīkṣita (c. A. D. 1630) comments :—

“पततो ग्रहः ॥ द्वे पीकदानी इति ख्यातायाः ॥”

Page 526 —*Kaṇḍa* III (*Lingadisamgrahavarga* 5, verse 21),

—“सकटाहः पतद्ग्रहः ॥२१॥”

Bhānuji comments :—

“पततः साम्ब्लादेः ग्रहः ॥ पीकदाह इति ख्यातः”

It is clear from Bhānuji's comments that the terms पीकदानी and पीकदाह were current at Benares where he lived in the first half of the 17th century and that they meant *Spittoon* used by the chewers of *tambula* like the *Rajas* described by Bernier as conveyed in palanquins and spitting chewed betel into *spittoons* held by servants on one side of these palanquins.

1. The use of Spittoons mentioned by Bernier was confined to the *Omrahs* and *Rajas* especially at Delhi and Agra. Many of them were “conveyed on the shoulders of six men, in rich *Pulchrys*, leaning against a thick cushion of brocade and chewing their *betel* for the double purpose of sweetening their breath and reddening their lips. On one side of every *paliky* is seen a servant bearing the *piquedans* or Spittoon of porcelain or Silver etc.” (Bernier, p. 283).

Where were the porcelain Spittoons manufactured? *Ain-i-Akbari* (A. D. 1590) mentions “*disks of ... China*” used at Akbar's table (pp. 30-31 of Vol. I of *Ain-i-Akbari*, Trans. by F. Gladwin, Calcutta, 1897).

(6) Sarvaṇanda (A. D. 1159) in commenting upon the words *प्रतिग्रह* and *पतद्ग्रह* mentioned by the *Amarakoṣa* for spittoon also connects the use of the spittoon with *tambāla* as will be seen from the following extract :— Page 390 of *Namalinganūṣāsana* of Amara ed. by T. Ganapati Sāstri, Trivandrum, 1914)

—“प्रतिग्राह्यं प्रतिग्रहं प्रति स्थाते । ‘विभायां ग्रहः’ (3. 1. 143) इति स्तंरि एः
प्रतिग्राहः । दृष्टितारसं ताम्बूलं पतद् गृह्णाति इति पतद्ग्रहः । पनादिः ॥”

It would be worthwhile finding out whether any other commentators of the *Amarakoṣa* associate the words¹ *pratigraha* and *patadgraha* for spittoon with *tambāla*.

(7) Some friends tell me that the custom of presenting a spittoon (*pikḍam*) as a marriage present along with other useful articles from the father-in-law to the son-in-law is now current in the Deccan and perhaps elsewhere in India. This custom appears to be old as the poet Śrīharṣa (c. A. D. 1175) refers to it in his *Naiṣadhyacarita* (canto XVI, verses 27-28—p. 228 of Eng. Translation by K. K. Handiqui, Lahore, 1934). On the occasion of Damayanti's marriage with king Nala, her father king Bhīma gave some marriage gifts to his son-in-law. Among these gifts we find a Spittoon *पतद्ग्रह* described by the poet in the following verses 27, 28 of canto XVI of the poem :—

“दिवरतेरादरदृशिनादराददौकि यस्तं प्रति विरवकर्मणा ।
तमेकमाणिक्क्यमयं महोन्नतं पतद्ग्रहं प्राक्षितवाजलेन सः ॥२७॥
नलेन ताम्बूलविलासिनोष्मिन्तेर्मुलस्य यः पूरकयैर्भूतो न वा ।
इति ज्येष्ठे वि स्वमयूखमयदलादुदञ्चदुष्वाक्यञ्चिरात् ॥ २८ ॥”

Translation :—

“27. King Bhīma gave to Nala a spittoon which was very high and entirely made of rubies. Viṣvakarman had cordially presented it to king Bhīma, perceiving Indra's esteem for him.

1. My friend Dr. M. M. Patkar of the Sanskrit Dictionary Department of the Deccan College Research Institute, Poona, informs me in his letter of 5th May 1950 that the word *पतद्ग्रह* is recorded in *Naiṣadhyacarita* (XVI. 27), *Harṣacarita* (p. 217, line 2 and Eng. Trans. by Cowell & Thomas, 1897, p. 208) and *Vaiṣṇavyantī Kosa*, (p. 171 line 319), *S'ābdaratna Samuccaya* (p. 344) *Medini Kosa* (p. 193), *Nanarthasamgraha* of Ajaya (p. 57) *Anekārtha samgraha* (p. 123) of Hemacandra *Purariṣṭ-ṣorṇa* of Hemacandra (p. 581 of Monier Williams' Dictionary). Among these references, the reference to *patadgraha* in the *Harṣacarita* was unknown to me, though Prof. Jagannāth of Jallundar had a vague memory of it as he wrote to me. I am thankful to Dr. Patkar and Prof. Jagannāth for the troubles taken by them in this matter.

- 28 On account of its halo of rays, beautiful as the rising high ascending sun, the people long thought : "It is full of the remains of chewed betel, thrown out by Nala, who is fond of betel."

The bright red ruby spittoon, though empty, seemed to be full of the scarlet remains of betel.¹

Analogous to the custom of presenting a spittoon as a marriage gift we find its use as a general presentation article in the 17th century. In a list of things to be presented to the Faujdar of Hugli, dated 3rd April 1682 we find "one *Hoocka*, one *pidan* (spittoon)"—(*Factory Records*, Hugli, No. 3 quoted in foot-note 2 on page 96 of Thomas Bowrey's account of countries round the Bay of Bengal (1666-1679) Hak. Soc., Cambridge, 1905).

- (8) At the present stage of my inquiry I may raise the question : *What nations of antiquity used the spittoon ?* Though I cannot answer this question owing to my limited knowledge of the history of non-Indian cultures I may here record the use of the spittoon current among the Tartars in the 13th century as vouched by *Marco Polo* (A. D. 1298) :—

Page 236 (*Travels*, ed. by W. Wright London, 1901)—chapter XXVI dealing with Religion of Tartars etc.

"Every man of rank carries with him a *small vessel*, into which he spits, so long as he continues in the hall of audience, no one daring to spit on the floor, and this being done he replaces the cover, and makes a salutation."

The Editor (Wright) observes on the above custom :—

(foot note 3)—"This kind of utensil (*spittoon*) is common in many parts of the *East Indies* where it is commonly termed, from the Portuguese, a *cuspidôr*. It might be inferred from hence that the practice then prevailed of masticating something of the nature of betel."

- (9) The Chinese traveller Fa hsien in his *Travels in India* (399-414 A. D.) describes the country of *Kashgar* (pp. 7-8 of *Travels*, trans. by H. A. Giles, Cambridge, 1923). In this description we find a reference to a stone spittoon used by Buddha as follows :—

1. The use of spicy ingredients in the betel is nicely mentioned in the following verse 110 of Canto XVI :—

"The followers of Nala, after putting the betel in their mouth, throw away the betel-leaf when they saw a scorpion made of spices, put inside the betel-roll by Dama. Struck with terror, they made every one laugh at their mistake."

Page 8—"This country (Kashgar) has a spittoon which belonged to Buddha; it is made of stone and of the same colour as his alms-bowl."

Evidently this stone spittoon was shown to this Chinese traveller as a relic of Buddha's belongings. It is mentioned along with "one of Buddha's teeth, for which the people have raised a pagoda."

This reference to Buddha's spittoon is in harmony with the reference to a spittoon (*paṭiggaha*) found in the *Mahāvagga* of the *Vinaya-piṭaka* noted below.

(10) In the *Mahāvagga* of the *Vinaya-piṭaka* (ed. by H. Oldenberg, London, 1879, Vol. I—*Mahāvagga*, p. 271) we get the word "*paṭiggaha*" for the spittoon. In *Khandhaka* VIII, I, 11 of this canonical text we get an account of the cure effected by the celebrated physician Jīvaka Komarabhaṭṭa. He treated a Setthi's wife at Sāketa, who was suffering from a disease in the head for seven years. He put some medicated ghee in her nose and it came out through the mouth. "And the Setthi's wife spat it out in the spittoon (*paṭiggaha*) and told the maid servant "come my girl, take this up with a piece of cotton". Jīvaka got perplexed at thisiggardly conduct of the house-wife, who, however, assured the great physician that his fee for the treatment will be duly paid. The Setthi's wife in giving this assurance observed :—

"House-holders like us, doctor, know why to economise thus; this ghee will do for the servants or workmen to anoint their feet with or it can be poured into the lamp. Be not perplexed, doctor, you will not lose your fee." (Page 178 of the English Trans. of *Mahāvagga*—S. B. E. Vol. XVII, Oxford, 1882).

The above reference to spittoon as a domestic sanitary appliance is the earliest so far discovered by me and it is more than two thousand years old.

(11) The *Carakasamhitā*, one of the earliest medical texts, contains the following reference to the spittoon (*pratigraha*) :—

Page 93 (N. S. Press, Bombay, 1941)—*Sūtrasthāna* (chap. 15, para 7) mentions the accessories of the sickroom, among which we find the spittoon (*pratigraha*) :—

" उपन्यस्तपूज्जारप्रतिग्रहाणि... उपकल्पयेत् "

Page 94 (chap. 15, para 11)—" प्रतिग्रहा उपचारयेत् " The commentator Cakrapāṇidatta (c. A. D. 1040) explains *pratigraha* to mean *patadgraha* (" प्रतिग्रहन्तीति प्रतिग्रहाः पतदग्रहाः "). Caraka also mentions "जात्रापरिष्कार" in the same context and describes it as "जनपदपरिष्कार"

which is explained by Cakrapāṇidatta as “अलङ्कारविषय”, लालाटप्रतिमा mentioned by Caraka was perhaps a special tray in which the forehead (ललाट) or face was washed and consequently it was considered decent (अलङ्कारविषय) as compared with the spittoon proper. If this explanation is accepted we can easily infer that in Caraka's time different types of trays were in use for cleaning different parts of the body somewhat like the sanitary ware in our modern hospitals.

(12) The earliest reference to the association of the spittoon (*patadagraha*) with betel-chewing is that found in the *Kāmasūtra* of Vātsyāyana (page 45 of N. S. Press Edition, Bombay, 1891) — *Sadharaṇa Adhikaraṇa* I, chapter 4. Describing the life of a citizen Vātsyāyana mentions his bed-room and its accessories as follows :—

“वायो च वासगृहे ... रात्रिरोपमनुलेपनं माल्यं सिन्धुकरसङ्कं लोणिकपुष्टिकां मातृमुखात्स्वचः ताम्बूलानि स्युः भूमौ पतद्ग्रहः ।”

Translation (p. 36 of Eng. Trans. by Dr. B. N. Basu, Calcutta, 1945) :—

“This outer room should contain a bed ... On this table the following articles required for the night's enjoyments should be arranged : balms and perfumed unguents, garlands, coloured waxen vessels, pots for holding perfumes, pomgranate rinds and prepared betels. There should be a spittoon on the floor near the bed ...”

The commentator Yaśodhara definitely connects the use of the spittoon (*patadagraha*) mentioned in the *Kāmasūtra* with the chewing of *tambūla* by the citizen (*nagaraka*) as will be seen from the following extract :—

“ताम्बूलानि च सञ्चितानि रात्रिपरिभोगार्थं स्युः । भूमौ पतद्ग्रहः । न वेदिकायाम् । प्रकान्ताद् व्यवभिक्षयते । यत्रस्थेन वा नायकेन उपयुक्तताम्यूलादि निधीयते पतद्ग्रहाति सा भूमिः । तत्र स्यात् । न अन्यत्र ।”

It is clear from these remarks that the spittoon was kept in the bed-room on the ground near the bed at a convenient place where it could catch the spittle thrown out at night by the citizen after using the *tambūla* at intervals

(13) The poet Bāṇa (c. A. D. 630) in his *Harṣacarita* refers to royal spittoons carried by hired porters along with other articles for royal use during king Harṣa's expedition described in picturesque detail by the poet. The pertinent extract reads as follows :—

Harṣacarita (B. S. series, Bombay, 1909, Page 285).

Ucchvāsa VII — “कृष्णकटिनस्कन्धगुस्तगुहैः पद्मोत्थोषध्यापारोटीस्यङ्ककस्तगरतद-
प्रापमाहैः etc. ”

Translation by Cowell and Thomas (London, 1909, Page 208) :—

" Here swiftly running in a line.....were the king's hired porters, carrying black hard clubs as heavy as trunks of trees, bearing golden foot-stools, water-pots, cups, *spittoons* and baths etc."

(The commentator Śaṅkara explains the word "*patadgraha*" as "*nijṣṭhīva-pātra*" (spittoon) and the word "*Karanka*" in the extract as "*tambala-adhara*" (betel-box). Evidently in this context also the *spittoon* follows the *betel-box*. There are numerous references to betel-chewing in Bāṇa's *Kādambarī* and *Harṣacarita* but the references to the *spittoon* are rare).

(14) There may be references to the *spittoon* in Sanskrit or Prakrit poetic imagery but I have not come across these references except the following reference from Bhartṛhari's *Śyngārāṣataka* which I owe to my obliging friend Prof. D. D. Kosambi :—

“कम्पुभ्यति कुलपुरुषो वेशपापप्लवमनोऽगमि ।

चारभटचोरत्वेऽकनिडीवनशरावम् ।”

Here *spittoon* is called “निष्ठोवन-शराव” and the mouth of a prostitute is compared to a *spittoon* which is indiscriminately used by all classes of degraded human beings.

From the evidence recorded so far I may tentatively draw the following conclusions :—

- (1) The *spittoon* was in existence in India at the time when the Buddhist canonical text *Mahāvagga* was composed about 300-250 B.C. It may have been in use in the time of Gautama Buddha (c. B. C. 563-490) and even earlier.
- (2) The use of the *spittoon* in India was first confined to domestic life especially for sick persons but with the introduction of *tambala* into India in the early centuries of the Christian era it came to be used by the well-to-do class of people addicted to *tambala*, which caused excessive salivation in the mouth with the consequent need of frequent spitting.
- (3) The use of the *spittoon* in the sick-room as prescribed by *Caraka* clearly shows that Indian doctors recognised the need of sanitary appliances like the *spittoon* more than 2000 years ago. A detailed study of such appliances on the strength of medical and non-medical literary sources should be undertaken by scholars interested in the history of Indian sanitation. Some of the texts on Hindu Dharmaśāstra contain ample material for a systematic study of the development of sanitation in India.

STUDIES IN THE
HISTORY OF INDIAN PLANTS

24. Studies in the History of Indian Plants —

Some Notes on the History of *Canaka*

(*Cicer Arietinum*) — Between

500 B. C and A.D. 1820*

In my paper¹ on the "History of *Canaka* (gram) as food for Horses" I suggested that the practice of feeding the horses with *Canaka* (= C) is later than its use for human consumption at least in India. Though C as *horse-gram*² for Indian horses has a history of about 1000 years as proved by me it appears to have been used in India first by men and not by horses. From Vedic times onwards the *Yava* (= Y) was prominent in the regimen of men first and later of horses. In fact Kautilya in his *Arathasāstra* has included Y in the regimen of horses but there is no reference to C in this work either for human or animal consumption, so far as my study goes. Accordingly Hemacandra in his *Abhidhānacintāmaṇi* (c. A. D. 1140) calls Y as *Haya-priya* or the favourite of horses. He also mentions C but does not call it *haya-priya* or by any such adjective. In the two treatises on horses by Jayadatta and Nakula viz. (1) *Aśvavaidyaka* and *Aśvacikitsita* respectively, which are not much removed from Hemacandra in their chronology, we are told that Y is the best food for horses but in case Y is not available C is the second best food for them. This statement clearly shows the transitional stage of Indian horse-regimen in which we note the regard for Y as the great horse-food of antiquity. Though much revered by Jayadatta and Nakula it was falling into background and C had come to the fore and was probably produced in plenty to take its honoured place in the regimen of Indian horses, perhaps after the Muslim advent in India say about A.D. 700.

I propose in this paper to put on record some references to C as food for men. These references will also show the antiquity of C on

* *Annals* (B. O. R. Institute), Vol. XXVII pp. 56-82.

1. See pp. 89-105 of *Annals* (B. O. R. Institute, 1945, Vol. XXVI).

2. Edward Moor in his *Narrative* etc. London, 1794, makes some interesting remarks on the Marhattas as horsemen and farriers — (pp. 89-95). He says that the Marhattas breed a great many horses and procure others from Arabia, Persia, Candahar and the northern parts of Hindustan. Speaking of horse-food he states:—

"Gram and Cooly are the grain on which horses are fed throughout the Maratha Country" (p. 96).

Indian soil for about 2000 years as vouched by the evidence of Sanskrit and non-Sanskrit sources.

(1) The lexicon *Amarakoṣa* refers to C as follows :—

“ वयसो हरिमन्थकः ॥ १८ ॥ ”—(Kāṇḍa II - वैयवर्ग, see p. 354 of N. S. Press Edition, Bombay, 1905).

Bhānuji Dikṣita comments¹ on the above reference as follows :—

“ हृ ‘वयस्य’ ” i.e. वयस and हरिमन्थक are synonyms. The date of the *Amarakoṣa* lies between say A.D. 500 and 800.

(2) In the *Carakasamhita*, one of the earliest medical texts, we get some references² to C. In the उपोषान्त्य वर्ग Caraka gives the properties of C as follows :—

“ वयसाम्ब मसूराश्च लघ्विकाः सहृद्यवः ।

लघवः पित्तमधुराः लघ्वाया विरुद्धाः ॥ २८ ॥ ”

(*Satrasthana*, ch. 27, p. 155 of N.S. Press, Edition of *Carakasamhita*, Bombay, 1941).

Cakrapāṇidatta (c.A.D. 1060) commenting on the above verse does not explain the word वयस. He merely states that C is well-known (“ वयसः प्रसिद्धः ”).

(3) The *Suśrutasaṃhita*, another earliest medical text, refers to both the synonyms of C given in the *Amarakoṣa* viz. वयस and हरिमन्थक in the following extracts :—

(i) In the कृषान्त्यवर्ग we get C mentioned in the following extract :—

1. Bhānuji Dikṣita (c. A. D. 1630) quotes the derivation of हरिमन्थक given by Rāyamukha (A. D. 1431) viz. “ हरिणं मन्थं कनति ” but does not accept it. He observes “—इति मुकुटः । लघुः हरिमन्थकः इति वयसश्चाह ” He gives his own derivation :—“ हरिणमिच्छते । मन्थं शिलोत्थं (मसू, प, र्ण) etc.” These derivations remain to be verified historically as both Rāyamukha and Bhānuji lived in the 15th and 17th centuries respectively when वयस was a recognised food for horses in India. Did Amara know C as food for horses ?

2. In the *Carakasamhita Cikitsāsthāna*, chapter 29, verse 51 contains a reference to वयस as follows :—

P. 630—“ वातवयवयस्यका मसूरा मसूराः समकुशकाः ।

मसूरा बहुलिकाः प्रशस्ता वातघोषिणि ॥ ५१ ॥ ”

Cakrapāṇidatta does not comment on the word वयस in this verse.

“मुद्ग-वनमुद्ग-कलाय-मकुष्ठ-मसूर-मङ्गल्य-चणक-सतीन-त्रिपुटक-हरेणु-
छादकी-मन्थयः वैदलाः ॥ २७ ॥”

(Vide *Sūtrasthāna*, Ch. 46 of *Suśrutasaṃhitā*, N. S. P. 1938, p. 216).

Dallana (c. A. D. 1100) commenting on the word चणक in the above extract says “चणकः प्रसिद्धः” just like Cakrapānidatta of c. 1060 A. D. It is, however, clear that C was a grain of established reputation in the 11th century as also in the 12th century.

(ii) In the शाकवर्ग the *Suśrutasaṃhitā* refers to चणक as a शाक or vegetable and records its properties as follows :—

“स्वादुपाकरत्नं शाकं दुर्जरं हरिमन्थजम् ॥”

(*Sūtrasthāna*, Ch 46, verse 277, p. 234).

Dallana explains:—“हरिमन्थः चणकः” (compare Amarakośa’s statement—“चणको हरिमन्थकः”).

It is clear from the above references that both the words for C given by Amarakośa viz. चणक and हरिमन्थ or हरिमन्थक were known as early as the time of the *Suśrutasaṃhitā* as we have them today. Whether the word हरिमन्थ has any allusion to horses (हरिभिः मन्थते) as observed by Bhaṇuji c. A. D. 1630 will have to be investigated.

(4) In the *Mānasollāsa*² of the Calukya king Somēśvara (c. A. D. 1130) there are various references to C such as (1) the use of C flour—balls as a bait to fish in angling, (2) the use of C as food for buffaloes used for buffalo-fights, (3) use of C grains for tempting the boars before hunting them in forest-ground and (4) the use of C in cooking. I have already recorded the first three uses in my paper on “*Canaka* as food for horses etc.” already referred to in this paper.

1. On p. 217 of the सुसुत्रसंहिता (1938) the properties of चणक are given in the following form :—

“वातलाः रतिमधुराः सकषाया विरूक्षणाः ।

कफशोणितपित्तघ्नश्चणकाः पुंस्त्वनाशनाः ॥

त एव घृतसंयुक्ताश्चिदोषशमनाः परं ।”

See also p. 683 —“मुद्गान् मसूरान् चणकान् कुलत्थान् समकुष्ठकान् ॥ १५० ॥

आहारकाले यूपार्थं ज्वरिताय प्रदापयेत् ।”

Ed. in G. O. Series, Baroda, Vol. II (1939),

The uses of C in cookery¹ as mentioned in the *Manasollasa* are as follows :—

In the chapter on अन्नभोग the author describes several dishes, both vegetable and non-vegetable (pp. 115-136).

(i) *Canaka* (gram) is to be ground in a परट्ट (grinding-stone) and then its pulse is to be cooked with spices. This is called विदलगा (pp. 116-117).

(ii) पूरिकाs prepared from चणकपिष्ट (or gram-flour) and boiled in oil are mentioned by our author (p. 119).

(iii) The preparation of वेष्टिकाs and धोसकाs is described in the following verses (p. 119) :—

“ हरिमन्थस्य विदलं विट्पुनीरकमिभितम् ।
लवणैश्च संयुक्तमाद्रिकेण समन्वितम् ॥६१॥
वेष्टयित्वा मोलकैश्च वेष्टिका लवणैश्च पचेत् ।
विदलं चणकस्यैवं पूर्वसंभारसंस्कृतम् ॥६२॥
ताप्यां तैले(ल) विलितायां धोसकान्निपचेद्भुजः ।
माषस्य राजमाषस्य बह्मणस्य च धोसकान् ॥६३॥
अनेनैव प्रकारेण विपचेत् सकलत्वषित् । ”

It would appear from the verses that the author asks us to use the pulse of हरिमन्थ in the preparation of वेष्टिकाs, while in the preparation of धोसकाs he prescribes the use of the चणक pulse (along with the pulse of माष, राजमाष and बह्मण). We shall have to see if he drew any distinction between हरिमन्थ and चणक, which are given as synonyms of gram by the *Amarakosa*.

(iv) The use of चणक and हरित चणक in non-vegetarian dishes is prescribed by Someśvara (p. 124).

(v) In the chapter on वास्तूपशमन, चणकोदन is mentioned along with कृतोदन, मुद्गोदन, मासोदन, रज्योदन among the offerings to the deity (pp. 10-11).

1. Prof. R. D. Karve, M.A., who has written a book on Dietetics in Marathi (आहारशास्त्र) informs me in a letter dated 7-11-1945 :— “About *grum*, I find in an American dictionary that it belongs to the East Indies. An ounce of *grum* (dry weight) contains 5.70 grammes of protein, 1.30 of fat and 15.30 of Carbohydrates giving 96 calories. It also contains Vitamins A and B to an appreciable extent, but not the other vitamins.”

These references to C and its various preparations in c. A. D. 1130 show how this कृषान्य of Susruta's time had attained wide celebrity and popularity within say a period of 1000 years from Susruta as proved by its use as food for gods, men, and animals described by Someśvara.

(5) The use of C in Brahmanical worship in connection with वास्त्ययमन referred to above has its parallel in the references to its use in Jain ritual as well. In a book on the Jain ritual called विधिप्रसा¹ by Jinaprabhasūri composed in *Saṃvat* 1363 (= A.D. 1307)² at Kosalānagara we find the following references to C :—

(i) Page 101 — In section 106 called प्रतिष्ठापकरणं संघट्ट, चया is mentioned among the seven dhānyas as follows :—

“सप्त धनं— सय बीज, कुलत्प, मसूर, वल्ल, चया, मीरि, चवला”

(ii) Page 101 — The use of चणक for प्रतिष्ठाविधि is referred to as follows :—

“ततो गन्धपुष्पयुक्तसप्तधान्यनयनमञ्जलिभिः ।

तच्चेदम्—शालि—यव—गोधूम—मुद्ग—वल्ल—चणक—चवला— इति ”

Jinaprabha's *Vidhiprapa*, though mainly Prakrit, contains some portions in Sanskrit. He uses both the names of C—(1) Prakrit चया and (2) Sanskrit चणक.

(6) In the *Aṣṭāṅgasamgraha* of Vagbhata I (c.A.D. 625) we get the following verse under शिम्बिधान्यवर्ग of ch. 7 (अन्नस्वरूपविशदीप) of *Saṣṭrasthāna* :—

Page 44—“शिम्बिजामुद्गामल्लत्यवनमुद्गमकुष्टकाः ॥ २१ ॥

मसूरचवलाटक्यश्चणकाश्च पृथग्निधाः ।

कषायस्वादुलपवो विषयान्मानकारिणः ॥ २२ ॥”

The commentator Indu makes no remarks on चणक in the above extract.

1. Ed. by Muni Jinavijayaaji, N. S. Press, Bombay, 1941 जिन्दरपुरी श्रीयं पुस्तकालय कन्ड — No. 44.

2. Vide 16 of Biographical account of Jinaprabhasūri by AgarchandNahtagiven in the above edition. Mr. Nahta has given here a list of Jinaprabha's works in which I find the following entry :—

“ विधिप्रसा, ३ भं, ६५७४, सं. १९६३ विजयदशमी, कोशलानगर ”

3. Other materials mentioned under section 106 include मसूर, यव, ऊज, माष, लण, गोक्षु, जया, d. (जयाक on 108), लिङ्ग, etc. जयाक or जयाक is obviously जयन्ता (Holcus Surghum) — (vide my paper on the History of Jondhola in B. C. Law Vol. I, 1945, pp. 142-158).

(7) In the शिन्धीधान्यवर्ग in chap. 6 (अन्नस्वरूपविज्ञानीय) of the *Satrashtana* of the *Aṣṭaṅgahridaya* of Vagbhaṭa II (8th or 9th century A. D.) we find the following verse :—

Page 87—"मुद्गादकीमूरादि शिन्धीधान्यं विबन्धहृत् ।

कपायं स्वादु संग्राहि कटुपाकं हिमं लघु ॥ १७ ॥ "

Here there is no direct¹ mention of C by Vagbhaṭa II but *Arunadatta* (A. D. 1220) says that चणक is implied by the word आदि (मूरादौति अन्न आदिरन्ते मकुडचणकादीनां ग्रहणम्). *Hemadri* (A. D. 1260) also takes the same view when he says in his comment on the above verse :—

"आदि शब्दात् संग्रहोक्तः (घृ. अ. ७)—"शिन्धीजापुद्गायाश्चत्वनवमुद्गायककुडकाः । मकुडचणकादस्यचणकाश्च वृषविषाः, इति "

(8) Dr. G. P. Mujumdar in his article on *Vedic Plants* (B. C. Law Volume, Part I, 1945, p. 652) makes the following entry about a plant of the name खल्वः :—

"55. <i>Khalva</i>	<i>Phaseolus radiatus</i>	A. V. ii. 1; V. 23. 8; <i>Vaj. Samh.</i> xviii, 12
<i>Caṇaka</i>	<i>Cicer arietinum</i>	महीधर glosses it with चणक (Chick pea)
<i>Nisṇava</i>	<i>Vigna catjang</i>	<i>Bṛhad. Up.</i> VI, 3, 32—सायण glosses it with निष्पाव ²

1. There is a direct mention of चणक in the निपातस्थान of चणकाहृदय (p. 494 of Parādhar Shastri's Edition, N. S. P., Bombay, 1939) as follows :—

"मुद्गादकीमूराहृदयोरचणकादिभिः "

चणक, खल्वः (= खोला *Holcus Sorghum*) etc. are not recommended for persons suffering from piles (अर्शस्).

In foot-note 4 on p. 87 Parādhar Shastri states :—"अस्यामे—

"असकं पित्तहरो रूक्षो वातलक्षणाकः स्मृत" इत्यधिकः पाठः (in अ Ms)

2. The word निष्पाव occurs in the *Carakasaṃhitā* (*Satrashtana*, ch. 26) as follows :—

"तथा कङ्गुवनकमकुडकुलपमापनिष्पावाः पयसा सह विच्छेदाः ।"

Cakraṇadatta (c. A. D. 1060) does not comment on निष्पाव in this line.—निष्पाव is mentioned in the *Uṇṇihāṭṭya* by चणक as follows :—

"अन्नगुलः सैवगजो, निष्पावा वातपित्तलाः ॥"

Cakraṇadatta explains :—"निष्पावो रक्तः."

In the *Uṇṇihāṭṭya* itself *Caraka* gives the properties of चणक separately as—"चणकाश्च मूराश्च etc.". It is, therefore, clear that he regarded चणक and निष्पाव as different.

(continued on the next page)

I cannot say how for Mahidhara's identification of खल्व plant (mentioned in the *Atharvaveda*, the *Vajasaneya Samhita* with चणक is correct, as Mahidhara lived between A. D. 1550 and 1620. Similarly Sayana's explanation of खल्व as "निष्पाव" is also suspicious. The names चणक and हरिमन्थ, both found in the *Amarakoṣa* and *Suśrutasaṃhitā* are not found in the list of Vedic plants recorded by Dr. Majumdar.

For identifying खल्व with either चणक or निष्पाव we must have some testimony of the earlier texts rather than that of the commentators of the 14th and 16th centuries viz. Sayana and Mahidhara respectively.

(9) In the *अष्टाङ्गहृदयकोष* by K. M. Vaidya, Trichur, 1936, the following extracts have been recorded under चणक :—

P. 212 — (1) c. A. D. 1450 — राजनिषण्डु of नरहरि gives the synonyms for चणक :—

“चणस्तु हरिमन्थः स्यात् शुग्धः कृष्णकञ्जुकः ।
वासभोग्यो वाणिज्यश्चणकः कञ्जुकी च सः ॥”

(2) माक्यकाश of माधमि (c. A. D. 1550) gives the properties of चणक :— “चणकः क्षीतलो रूक्षः etc.” He also mentions different properties for चणक when it is बंगार-मृष्ट (fried on burning coal), नार्द्रमृष्ट (fried when green) कृष्णमृष्ट (fried in oil), शुष्कमृष्ट (fried when dry) etc. Mr. Vaidya records further the properties of black Canaka (कृष्णचणक) as follows :—

“कृष्णस्तु चणकः शीतो मधुरश्च रसायनः ।
बलकृन्धवाक्कासघ्नः पित्तातीसारपित्तहा ॥”

This verse is taken from “नि. र.” (= निषण्डुरलाह ?) a late medical work.

(10) The *वसिष्ठपुराण* (Venkateshvara Press, Pothi Edition) contains the following references to चणक :—

(continued from the previous page)

The *अष्टाङ्गसंग्रह* contains several references to निष्पाव as follows :—

(1) सूच. Chap. 7 — “निष्पावस्तु सरोक्षः” The commentator इन्द्र explains :—
निष्पावो राजशिश्विः ”

— “चिल्लिलट्वाक निष्पावः” — इन्द्र explains :— “नि. राजशिश्वी”

Chap. 8 — “रूपं दद्यात् । निष्पावाम्बुधिर्वा” — इन्द्र explains “निष्पावः शिन्वीशान्वपिदि”

Chap. 9 — “कुलत्पथान्निष्पावः” — Here इन्द्र does not explain the word निष्पावः

The *वायव्याह* (c. A. D. 1550) repeats Indu's identification of निष्पाव as follows :—

“निष्पावो राजशिविः स्यात् बलकः रक्षेतिदिः”

(i) Chap. 175 (folio 123) — चणक is forbidden in the observance of a fast :—

“उपवासः स विशेषः सर्वभोगविवर्जितः ।

कार्यं मांसं मधुरं च चणुकं कीदृशकम् ॥ ६ ॥

शाकं मधु परान्नं च त्र्यजेदुपवसन् जियम् ।”

(ii) Chap. 279 (folio 199) सिद्धीचानि

—“मुद्रया मधुराश्चणुकाः कुलत्याश्च मकुटकाः ॥ ६ ॥”

—“मकुटचणुका मुद्रया मधुरा गोधूमका हिताः ॥ ६ ॥”

(iii) Chap. 289 (folio 199) मधुराश्चणुकाश्चिह्नकम् — Here चणक is prescribed as food for horses.

‘ निस्तुपाणां प्रदातव्या यवानां चतुरादकी ।

चणुकमीहिमोद्गानि कलायं वापि दापयेत् ॥ ५० ॥ ”

When this section of the *Agnipurāṇa* was composed, the practice of using चणक as food for horses as an alternative to सब was getting into vogue. According to Dr. Hazra the present *Agnipurāṇa* incorporating summaries of works on the different branches of learning was “compiled sometimes during the 9th century” (Vide p. 138 of *Puranic Records*, Dacca, 1940). We may, therefore regard the above reference to चणक as food for horses along with सब, as belonging to the period A. D. 800-900.

(11) In the *बृहत्संहिता* of Varāhamihira (c. A. D. 500) I have found the following references to चणक :—

(i) Chap. 15 — verse 14 (P. 96 of Calcutta Edition, 1865)

—“हन्तामि देवते रक-

पुष्पफल शास्त्रिनः सतिलमुद्रयाः ।

कार्पास मास चणुकाः

पुन्दर हुताश भकाश्च ॥ ”

(ii) Chap. 16 — verse 34 (P. 105)

—“कटुतिक्त रसायन विषव-

योषितो मुजगतस्करमहिष्यः ।

सरकरमचणुकवानुल—

निष्पावा चार्कपुस्तस्य ॥ ३४ ॥ ”

(12) In the *Bower Ms* — Part II (ed. by Hoernle) p. 56 the reading “चणके” has been restored by the editor but it cannot be relied on for evidential purposes.

(13) In the Jaina Prākṛit work *Pauma-Cariya* (Ed. by Profs. N. A.

Gore and R. D. Laddu, Poona, 1941) canto 33, verse 16 (p. 6) we get a reference to चणक (= चणक) as follows :—

“ चणुय तिल मुगमाषा
विस्त्रियया तन्दुला य येगविहा ।
दोषन्ति बहुरेते
जिह्वा य जरमाषो पडिया ॥ १६ ॥ ”

This is a description of the country of Avantis (अवन्तिप्रदेश).
Translation :— “There are seen scattered *grams*, *sesamum*, *mug*, *beans* and *rice* of many species as well as old bulls lying down in many places.”

(14) The पञ्चतन्त्र (मिश्रमेद्) N. S. Press, 1902, refers to चणक and the practice of frying it as follows :—

Page 23 — “ उत्पतितोऽपि हि चणुकः
शकः किं भ्राष्ट्रकं भंक्तुम् ॥ १४३ ॥ ”

(15) The कल्पद्रुमकोश (A. D. 1660) edited in G.O. Series (Baroda, 1928, p. 159) refers to fried and salted (*gram*) *pulse* as follows :—

—“ दालिः रित्रयां पुंसि खो दाली स्वात्स्वयान्विते ”

(16) The राजनिघण्टु of Narahari (c. A. D. 1450) which is later than मत्स्यनिघण्टु (A. D. 1374) defines दालि as follows :—

“ स्फोटयतु चणुकादीनां दालीति परिकीर्तिता ”

(Vide p. 389, Chapter XVI of राजनिघण्टु — Anandashram Sans. Series, 1896— सत्त्वादिवर्ग).

(17) The शुद्धसमाजतन्त्र (G. O. S. Baroda) which Dr. Benoytosh Bhattacharya assigns to 3rd Century A. D. (see Intro. p. XXIX) contains references to चणक in the following extracts :—

Page 53—“ हुंकार गुटिकां प्यात्वा चणुकास्थिप्रमाणातः ।
मध्ये स्वदेवताविम्बं मुखे चिन्त्य विभावयेत् ॥ ”

(the expression “चणुकास्थिप्रमाणतः is repeated thrice on this page). —

Page 25—“ यवमात्रं प्रयत्नेन नासिकाम्रे विचिन्तयेत् ॥
चणुकास्थि प्रमाणं तु श्रष्टव्यं शकेश्वरम् ।
नासिकाम्रे इदं स्पष्टं भावयेत् बोधितवरः ॥ ”

(18) The नाकान्तमैरवकल्प (B. O. R. Institute, Ms No. 43 of 1925-26) mentions the materials to be kept in store (वस्तुसमूहकल्प). Referring to the granary it observes :—

“ श्रीरिमोधुमचणुकमुद्गमावयवादिभ्यम् ।
धान्यजातं च संश्लघ धान्यकोष्ठेषु निक्षिपेत् ॥ ”

This work appears to have been composed between A. D. 1500 and 1700.

(19) The *Hobson-Jobson* (London, 1903) in the article on *Kitchery* (किचरी) refers to the use of "pease" as food for horses in the following extract :—

c. 1475 — "Horses are fed on *pease*, also on *Kichiris*, boiled with sugar and oil etc." — *Athan Nikitin*.

Possibly "*pease*" here are equal to "*Chick-peas*".

(20) Even though चणक appears to have come into use as food for horses from the time of the *Agnipurana* (9th century A. D.) the reputation of चण as food for horses remained untarnished as will be seen from the following references :—

(i) King Bhoja in his *सुक्रिकवचन* (Calcutta, 1917) (c. A. D. 1050) has a section on अश्वयुक्ति in which he prescribes चण¹ as food for horses :—

P. 193 — "यवांश्च पक्त्वा वितरेद् विधिरः ॥ २५ ॥"

P. 191 — "शिशिरे....."

तदनु प्रातर्भोजयेद् यवांश्च ।

यवयवसांश्च तथामृतस्वरूपान् ॥ २६ ॥ "

(ii) The *साङ्गपरिवादलि*, (c. A. D. 1325) B. S. S. Edition, p. 262, verse 1711, prescribes चण for horses :—

— "द्वौ पृत यवानौ शिशिरं सर्वदा शुभम् "

(21) Nakula in his *अश्वचिकित्सित* (*Bib. Indica*, Calcutta, 1887, p. 39) prescribes चणक moistened with water for horses in the absence of चण :—

"यवाभावेऽप्य चणकान् दद्यादाद्वैतरान् सदा ।"

The practice of feeding horses on चणक moistened in water referred to by Jayadatta is corroborated by Tavernier (A. D. 1641-1668) who observes in his *Travels* (Vol. I, pp. 102-3) as follows :—

They receive a measure of *Chick-peas* which the groom has crushed between two stones and steeped in water. It is these which take the place of hay and oats."

1. King Bhoja refers to चणक in the following verse of the अश्वयुक्ति (section on अश्वयुक्ति p. 189 of *सुक्रिकवचन*, 1917) :—

"रुहे मृत्युक्षिप्यांलैश्चतुर्भिश्च विविधके ॥६१ ॥

पञ्चमिनीलवणे च चणमिषं समाकृती ।

सहस्रिः पाटलाकारं चणुकामे तपाहमिः ॥ ६२ ॥ "

(22) The Vijayanagar horses in the 16th century were fed on चणक. Barbosa (A. D. 1500) says :—

"The food is rice boiled with Chick-peas and other pulse and each man.....comes to draw the ration for his horse or elephant" (Vide pp. 130-131 of *Third Dynasty* by Venkataramanayya. Madras).

(23) Prof. Dalgado (p. 172 of *Portuguese Vocables*, G. O. S. Baroda, 1936) has recorded some information about चणक (gram) as follows :—

"GRAO - Konk, *grāntv.* the chick-peas, *Cicer arietinum* — LunnThe Portuguese formerly called the above vetch *gravo de cavalo* (' vetch for horses ') and not merely *grao* ; it is smaller than the kind grown in the Iberic Peninsula. At the time when the Portuguese took Goa they found that *mungo* (Hindustani *mung* was used there as horse-food).

(24) The word चणक (or its synonym हरिमन्थ or हरिमन्थक) is not found in the कात्यायनवार्तिक . अष्टाध्यायी , महामाव्य and चातुषाठ (see Word-Indices to these works published by the B. O. R. Institute Poona). In the word-index to गणपाठ it is recorded by Pt. Chitrav Shastri as " चणक, ७१, ७२ " but the commentary कालिका (c. A. D. 651) has different variants for this चणक viz. चणक, चणै. As the गणपाठ appears to have been considerably tampered with since Pāṇini's times this reference to चणक in the गणपाठ is not reliable. I hope that the specialists in Sanskrit grammar will examine this point more closely and see if my statement is correct.

(25) The *Arthasāstra* of Kauṭilya (or Kauṭalya) as its word-index shows, does not contain the words चणक or हरिमन्थ.

(26) The बृहद्भागवतसंहिता (Ms No. 542 of 1895-1902 dated Sāvat 1881 A. D. 1825) contains a chapter on तुलाकोष in which there is reference¹ to चणक and other grains as will be seen from the following stanzas on folio 192 of the Ms :—

" शालीन् श्रीधन्यवाञ्छेवगोधूमांश्च विलांसया ।
केदवांश्च प्रियंगूश्च मुद्राम्यापान् सवर्षपान् ॥
अयकान्महनिष्पावान् कुलत्पान् महेष्टुकान् ।
सामान्येति कृत्वा तु तुलाधारणं धारयेत् ॥ "

(27) In the *दृष्ट्यानुबोध* of वाककाव्य (*Anandaśrama Sans. Series*, Poona, 1894, p. 646), a big treatise on the care and medical treatment of

1. This reference was kindly supplied to me by Mr. S. N. Savadi, B.A. (Hons.), my Senior Cataloguing Assistant in the Manuscript Department of the B. O. R. Institute, Poona.

elephants I have traced the following verse containing a reference to the use of चणक in the diet of the elephant along with यव, गोधूम, ककाय etc. :-

“तदाहि यवगोधूमाः कलायाश्चणकास्तथा ।
यवसार्धं प्रशस्यन्ते शात्पन्नं चैव भोजनम् ॥ ५९ ॥”

(28) The commentators श्रीरत्नामिन् (c. A. D. 1050) and वन्यचरी सर्वानन्द (A. D. 1159) comment on the line in the *Amarakośa* “चणको हरिमन्थकः” as follows :-

श्रीरत्नामिन् — “चणते दीर्यते चणुकः ।
हरिभिर्मथ्यते हरिमन्थकः ॥ ”
सर्वानन्द — “चणुकद्वयं चणुके । चन च नोप्यते ॥
इत्यस्माद् धातोर्यथादि कस्तुना धातुप्रदीपादौ
चनकः साधितः । चणुकस्तु चिन्त्यः ।
हरिमन्थके स्वार्थिकः कः ॥ ”

But these commentators lived in times, when चणक as horse-food was quite current in India.¹

(29) Hemacandra in his *वैश्यानाममाळा* (c. A. D. 1140) explains the word हरिमन्थ for चणक as follows :-

“हरिमन्था चणकाः । हीरो वृत्तीश्वलाभदावादि वस्तु ।
वज्रवाचकस्तु हीरशब्दः संस्कृतसमः । इरवाचकस्तु
हरशब्दभवः । केचित् हीर शब्दं भ्रमन्त्यपि प्रयुज्जते ”

(see p. 343 of *वैश्यानाममाळा*, B. S. Series, B. O. R. Institute, Poona, chapter VIII, 70).

We have now the three variants of the synonym for चणक viz. हरिमन्थ, हरिमन्थक and हरिमन्थ.

(30) The use of चणक in worship is found recorded in the following verse of Bharata's *नाट्यशास्त्र* (Vol. I, ed. by M. R. Kavi, G. O. Series, Baroda, 1926, page 77) chap. III, verse 40 :-

“अर्चयेद्भूतसंघाम चणुकैः पलसाप्लुतैः ॥ ४० ॥ ”

Mr. Kavi records the following variants for the above reference to चणक :-

“वेष्टयत्तकाप्लुतैः (ग) ” and “पलसाप्लुतैः (ज) ”

1. See my papers on this subject viz.

(1) “Role of Yava and Capaka in the Regimen of Indian Horses as disclosed in the *Aśvśikṣāvāda* of Vāgbhaṭa, son of Vikrama” in *Dr. A. B. Dhruva Volumes*.

(2) “Use of Capaka as horse-food, vouched by Five Sanskrit Treatises on the *Aśvśikṣā*” in the *Pragayagat*, Calcutta, 1946.

We may compare the above use of चणक in worship with the use of चणकोत्पल as an offering to deity mentioned in वास्तुसामan in the याजुर्वेद (A. D. 1130) and the use of चणक in Jaina ritual as laid down in the त्रिपिटका (A. D. 1307)—(see references Nos. 4 and 5 given above).

(31) There is no reference to चणक in the following ration¹ for horses laid down by Kautilya's अर्थशास्त्र :— (1) Rice, (2) Barley (यव), (3) Priyangu (4) Mudga, (5) Maṣa, (6) Oil, (7) Salt, (8) Flesh, (9) Broth, (10) Curd, (11) Saṅgar, (12) Liquor, (13) Milk. (Vide p. 147 of *Eng. Trans.* of अर्थशास्त्र, 1929, by Shama Sastry).

This omission of चणक in the ration of horses, given by कौटिल्य in a detailed manner, is significant. चणक as horse-food appears to have been adopted much later than the time of the *Arthashastra*.

(32) In the medical compendium काश्यपसंहिता which was discovered some years ago by Rajaguru Pandit Hemaraj of Nepal and subsequently edited by him (N. S. Press, Bombay) चणक is referred to in the following stanza on p. 171 :—

“ तैलानि कङ्गवादकी यावकाश्च
मूलानि चन्द्राक्षणुकाः कलाशः । ”

This compendium is one of the earliest medical texts like the शतसंहिता, the सुश्रुतसंहिता, the मेरुसंहिता and others.

(33) The मेरुसंहिता, Ed. by Asutosh Mukerji, Calcutta, refers to चणक in the following lines on p. 46 :—

“ मुद्गान् मसुराश्चणुकान् कुलुत्पांश्च सलीलकान् ”

(34) शिवव्यासस्य in his commentary on the द्रव्यगुणसंग्रह of चक्रपाणिन्य c. A. D. 1060) quotes the verse on चणक from the *Carakasamhita* as follows :—

“ तदुक्तं चरके—‘चणुकाश्च मसुराश्च सण्डीकाः सह रेणुवः ।
वितर्लेप्यणि शस्यन्ते’ इति ”

(Vide p. 30 of द्रव्यगुणसंग्रह ed. by Kailasa Chandra Sen, Calcutta, 1874).

(35) चक्रपाणिन्य records the properties of चणक in his द्रव्यगुणसंग्रह (p.29) as follows :—

“ चणको वातलः शीतः कफघ्नश्च पित्तपुंस्तनुः ॥ २८ ॥ ”

1. Cf. the daily ration of a horse recorded in Peshwa's Diaries about A. D. 1760 (P. S. No. 22—Document No. 172) :—

“ मूदु सेन्नाया सारा १ ; सान्नी हरनी (gram) ; १ के पीठ (flour) ; ऊर्वा के घू (ghae) ; कण्ठक सारा (mgar) ; १ कक बाते गिरे (black Pepper). ”

(36) The Prakrit-Hindi Dictionary पाणिन सप्त-महर्षणवो (प्राकृत-सप्त-महर्षणवो) by Har Govindadas (1923-28) records the following words about चणक :—

P. 399 — चण्डाया— स्त्री [चण्डिका] = मद्र ; अन्नविशेष
(Usages) :— अणमसुच (५, ३) भा. समिति (1918, Bombay)
चण्डा (See चण्डा)

P. 398 — चण्डा and चण — [चणक] = चना ; अन्नविशेष
—(Usages) :— अण्दीपग्रहण (D. L. P. Fund, Bombay, 1920) ३
—अण्दीपग्रहण (B. S. S. 1900)

—गाथासप्तशती (Ed. by Weber. Leipzig, 1881, and N. S. Press, Bombay, 1911) ५५७

(c. A. D. 1140)— देशीनाममाला, १, २१ (B. S. S. 1880)

P. 399 — चण्डा = (चणक)

Usages A. D. 1143 :— सुपासनाहचरित ६३१ (Benares, 1918)
about (A. D. 1100)— सुरसुरीचरित ३, १४८ (Benares, 1916)

— चण्डागामा^१ (= चणकग्राम)—ग्रामविशेष, गौडदेशका एक ग्राम

— चण्डापुर-नगरविशेष ; राजगृह—नगर का असली नाम .

It will be seen from the above references that चणक is represented in Prakrit texts also from very early times.

(37) In the *Mahanubhāva* text of c. A. D. 1250 called the *वीणाचरित* (Ed. by H. N. Nene, Nagpur, 1936, 1937) the Marathi word चणे (gram) for चणक is found in the following line :—

Part IV, p. 51—'गहु : चणे : जेपले : देसे होते : तेयाचा भकजनाचा डाई उपहारु केला '

Here the use of gram (चणे) along with गहु (wheat) and जेवळे (Jawar, *Holcus Sorghum*) as food current in the Maratha country is distinctly mentioned.

(38) श्रीरत्नायिन् (c. A. D. 1050) the commentator of the *Amarakośa* specifies in the following lines 17 edible grains in which चणक (gram) is mentioned :—

1. Compare the derivation of the word चाणक्य as son of चणक ऋषि given by Hemacandra in his lexicon *अभिज्ञानशब्दार्थ* (३ सर्गपाठ, verse 517) as follows :—

“ वात्स्यायने मल्लनागः फीटित्यश्वाक्यकालमजः । ”

Hemacandra explains :— “ चणकस्य श्वके प्रायतः चणकस्यकः, चाणक्योऽपि ”—
I cannot say if this derivation is historically correct.

“ शीर्षिको मसूरो गोधूमे सुदामापतितचण्डकाः ।
 अणुवण्डियुक्तोदवमकुण्डकाः (रासिरादव्यः) ।
 द्वौ च कुलायकुलायौ राण—स्तदराणि धान्यानि ॥ ”

(See p. 203 of *Amarakośa*, ed. by H. D. Sharma and N. G. Sardesai, Poona, 1941).

On p. 204, श्रीरस्वामि explains चण्ड as “ चण्यते शीयते चण्डः ”

(39) The Kashmir poet Damodara Gupta in his Sanskrit work *पुष्पीमत* (A. D. 755-786) refers to चण (= चण्ड) in the following stanza :—

“ गृहरातमधिकमदित्वा कलम—कुलत्पादि—चण—मसूरादि ।
 पक्षीभूतं मुहूर्त्ते लुधोपततोऽन्वगे धेत्तुम् ॥ २२१ ॥ ”

(Vide p. 52 of *कुटनीमत* ed. by Tripathi, Bombay, 1924). Here चण (gram) is mentioned along with कलम, कुलत्प, मसूर etc. gathered by a wandering beggar for his food from hundred different houses. चण्ड or चण was obviously grown in plenty in Kashmir or imported there from other provinces in the 8th century A. D. so as to be available for distribution as alms to beggars as shown by the above stanza.

(40) In the medical compendium called the *राजसंघटिता* (ed. by P. L. Vaidya, Poona, 1917) चण्ड is referred to in the following verses:—

Khanda 3, chap. 2 — Page 8 (स्नेहपानविधि)

“ रुद्धस्य स्नेहनं स्नेहेरतिस्निग्धस्य रुद्धणम् ।
 रामाकचणकादाश्च तद्विषयाकृष्टकृभिः ॥ ३१ ॥ ”

This treatise mentions अहिफेन (Opium) on pages 165, 75 etc. According to Pt. D. K. Shastri शास्त्रिभर (son of रामाशर) the author of the *राजसंघटिता* “definitely lived in the 14th century” (Vide his article on *Medical Science in Gujarat* in *Journal of Gujarat Research Society*, April-July 1945, p. 84).

(41) The lexicon *वैजयन्ती* (c. A. D. 1055) refers to चण्ड in the *रुमिकाण्ड* (वैद्यभाष्य) as चण :—

“ वातुलक्षणः ” (Vide 126 of Oppert's Edition).

(42) In the *Hobson-Jobson* (By Yule and Burnell, London, 1903) there is an article on GRAM (= चण्ड) in which references to Gram as horse-food are recorded from A.D. 1513 onwards (vide pp. 392-393 of *Hobson-Jobson*).

(43) In his *टिप्पणी* on the *अष्टाङ्गसंघ* (Poona, 1940—स्वच्छाण) Pt. R. D. Kinjavadekar quotes the following verses containing a reference to चण्ड :—

“निरुपेक्षणकैर्भूयेस्तुयोरैश्च यवेः कृताः ।
 लघवः शुर्कराशर्विर्बुका ग्रीष्मेऽतिपुञ्जिताः ।
 शुक्ला लघवो यस्याः शृङ्गास्तुमिदचिप्रदाः ॥”

No source, from which this extract is taken, is indicated by Pt. Kinjavadekar.

(44) In the Marathi Dictionary called the *Varṇakośa*, Poona, 1934, the equivalents of चणक are recorded as follows :—

Page 1134 — चणा=हरभरा (मोक्षदा वाण्याणा)

Usage :—“वानराचें देवणें । गालफडा भराने चण ”

This usage shows the fondness of monkeys for चणक.

Page 3175—हरब(भ)रा=चणा [सं. हरि=घोडा or हर=शिव + भरक]. I cannot say how far this etymology of हरभरा is correct. I may, however, compare the word हरभरा for चणक with हरिमन्य or हरिमन्यक its synonym recorded in the *Amarakośa* and the *Sūtrātasaṃhitā*. In the absence of a systematic record of usages of words any imaginary derivations of words are inconclusive, if not at times ridiculous.

(45) In the treatise on horses by वाग्भट, son of विक्रम, called the *Chakrapāṇī* (Ms No. 581 of 1899-1915 in the Govt. Mss Library at the B. O. R. Institute, Poona) there are two small sections called the *यवविधि* and *चणकविधि* dealing with the praise of यव and चणक respectively as food for horses (folios 55-56). This Ms is dated (*Samvat* 1707 = A. D. 1651). I have sent for publication a paper on these sections to the *Dr. A. B. Dhruva Commemoration Volume*. I may, however, note here the following important verses from the *चणकविधि* which tell us that यव was the principal horse-food in the region between the Himalayas and the Vindhya mountains, while to the south of the Vindhyas चणक was favoured as horse-food ; in the western regions मकुष्टक was the principal horse-food.

“हिमालयादित्यभुवस्तु यावत् यवः प्रथाना कथिता मुनीन्द्रे ।

दिग्दक्षिणायां चणकः प्रशस्तो मकुष्टकः पश्चिमभूमिभागे ॥”

—“चणको दक्षिणे विन्ध्याद् उत्तरेण यवादितः”

The date of this *Chakrapāṇī* is not fixed. It appears to be earlier than about A.D. 1000. In the 54 breeds of horses mentioned in this work no reference is made to the Persian and Arabian horses which are mentioned by *Varṇakośa* and *मकुष्टक* in their treatises on the horses.

(46) In another treatise on horses called the *Sārasamucaya* (Ms No. 119 of 1866-68 in the Govt. Mss Library at the B. O. R. Institute, Poona) by one कल्याण, son of विक्रम, there are references to चणक as horse-food on folios 10 and 11 as follows :—

—“ भेष्टः सुजातभण्णोत्तिनीलः पुण्यैः फलेः संवित एष देवः ”

—“ हिमालयाद्रिच्यमुवस्तु यावद् यवः प्रधानः कथितो मुनीन्द्रेः

दिग्दिग्वायां चणकः प्रयस्तो मकुटुकः वधिमभूमिमामे ॥ ६ ॥ ”

[This verse is identical with the verse quoted by me from the *अथायुर्वेद* (चणकविधि) of *वाग्भट*].

The date of this *सारसमुच्चय* is not known. It may be later than A. D. 1000.

(47) *विद्यालक्ष्मी* in her *गङ्गावाष्पावली* (ed. by Dr. J. B. Chaudhuri, Calcutta, 1940) deals with the objects that are not to be used by a pilgrim performing a *Śraddha* at a holy place. She, however, mentions *चणक* among the grains that may be offered as will be seen from the following verse:—

Page 252 — “ यवैर्मदितिलैर्मपैर्गोधूमचणकैस्तथा ।

सन्तर्पयेत्पितृभूतैः श्यामाङ्गैः सर्वपद्मैः ॥ ”

According to Dr. Chaudhuri the *गङ्गावाष्पावली* was composed by *विद्यालक्ष्मी*, the wife of *पद्मसिंह* King of Mithila. After the death of *पद्मसिंह*, *विद्यालक्ष्मी* came to the throne. *विद्यापति* was a senior contemporary of *विद्यालक्ष्मी* who flourished in the 15th century A. D.

(48) The *Prakrit-Hindi Dictionary* पाटल सर महर्षय (पाटल शब्द महाशय) by Har Govindadasa makes the following entries about *हरिमन्थ* (—चणक) :

Page 1186— *हरिमन्थ* (दे) काला चना ; अन्नविरोध

Usages :— भा १८ (आद्यप्रतिक्रमणवृत्ति, D. B. P. Fund, Bombay, 1919),

— प्रव १५६ (प्रवचनसारोद्धार ed. B. Manek,)

— संशोध ४३ (संशोध प्रकरण, Ahmedabad. 1916)

— दे ८, ७० टि (देशीनाममाला B. S. S. See *हरिमन्थ*)

In *Reference No. 29* above I have already quoted the remarks of Hemacandra on *हरिमन्थ*. The word *हरिमन्थ* (or *हरिमन्थ*) has been evidently treated as a *देशी* word in the पा. स. महर्षय, though the *Amarakosa* records it as a synonym of *चणक*. We have also seen that the *सुश्रुतसंहिता* records the word *हरिमन्थ* (see *Reference No. 3* (ii) above). In connection with these usages of the word *हरिमन्थ*, or *हरिमन्थ* we must also investigate the relation, if any, of the Marathi word *हरवरा* or *हरमरा* with *हरिमन्थ*.

(49) In the *जुक्कनीतिसार* (ed. by Jivānanda Vidyāsagara. Calcutta, 1882) we find the following verse containing a reference to *यव* and *चणक* as the best horse-food. Page 480 (Chapter IV, 7th prakaraṇa, verse 143) :—

“ यथाश्च चणकः श्रेष्ठा मया माया मकुटकाः ।
नीचा मय्यत्र मुद्राश्च भोजनार्थं तु वाजिनः ॥ १४३ ॥ ”

Here यव and चणक have been given equal status as food for horses, somewhat like the statement of the ब्रह्मसुतेन्द्र of वाग्मतर, son of विक्रम. However, while the ब्रह्मसुतेन्द्र allocates the superiority of यव, चणक, and मकुटक to the regions between the Himalayas and Vindhya, the region to the south of Vindhya and the western region, respectively, the शुक्रनीतिसार merely states that यव and चणक are the best horse-food, माय and मकुटक are of middle quality and मयूर and मुद्रा of the lowest quality as horse-food. Judging by this verse we may infer that this verse was composed at a time when चणक had attained a superior status as horse-food but यव had not been superseded by it.

(50) In his *Patna-Gaya Report* (A. D. 1811-1812) Francis Buchanan deals with leguminous plants. About चणक he observes :—

Pages 499-500— “ the *But* or *Cicer Arietinum* is the most important leguminous crop.... It is chiefly reared near the Son and in the Southern parts of Sheykpurah, where the system of agriculture is very bad.....The variety called *Kabali*¹—*but*, which has a white flower and is most commonly called *Chana*.”

(51) विश्वविश्वर (A. D. 1070-1100) the author of the *मिनाचरा* commentary on the *वायव्यवस्था स्मृति* mentions the following articles as fit for *कारुहवि* (oblation at a *Śrāddha*) :—

मीरि, शालि, वव, गोधूम, मुद्रा, माय, मुत्तन्न, कालराक, महाशल्क, एला, शुषठी, मरीच, विह्व, गुड, शर्करा, कर्पूर, सैन्धव, सांभर, पनस, नालिकेर, कदली, यदर, गव्यपत्र, दधि, घृत, पायस, मधु, मांस, etc.

He proscribes the use of the following articles on the authority of *Smṛtis* at a *Śrāddha* ceremony :—

कोदव, मयूर, चणक, कुलित्य, पुलाक, निग्याव, राजमाय, कृष्णाण्ड, वार्ताक, बृहतीद्वय, उपोदही, वंशांकुर, पिप्पली, वचा, रातपुष्प, उपर, विडाल, लवण, माहिप, चामर क्षीर, दधि, घृत, पायस.

It is clear from the above statement that चणक had not attained the sanctity attached to यव and other grains at the time, when the *मिनाचरा* was composed.

1. Cf. Parched and salted gram called *कावली* sold in Poona streets every Friday (The *श्री* calls this gram as *पावरी कावली हलदी*).

(52) In his *History of Dharmasastra* (Vol. II. p. 784) Prof. P. V. Kane records the following quotation from the *संहिता* (in the *वाह्यध्याय* , pp. 394 and 404) which allows the employment in offering to gods of all cereals *except* कोद्व, चणक (gram), माष, मसूर, कुलत्प and उदालक :—

“ आश्रमधर्म—अविरोधेन, प्रतिनियतानामोषीनां
कोद्व-चणुक-माष-मसूर-कुलत्प-उदालकैर्न निर्वपणीयम् ॥ ”

This reference to चणक as forbidden¹ food is in harmony with the remarks of विश्वनेश्वर about चणक as a cereal proscribed for use in a *Śraddha* ceremony.

(53) In the medical glossary *धन्वन्तरिनिघण्टु* supposed to be earlier than the *Amarakośa* चणक is mentioned in the following line :—

“(क) कायकृत्ति पुंस्त्वन्ना अणका वातला हिमा ।”

(See folio 36 of Ms No. 924 of 1884-87-*धन्वन्तरिनिघण्टु* dated Sāmvat 1698 (= A. D. 1642).

In Ms No. 923 of 1884-87 of *धन्वन्तरिनिघण्टु* dated Śaka 1605 (= A. D. 1683) I could not trace the above line in the *धान्यवर्ग* (folios 66-68). There is, however, in this वर्ग another line which describes the properties of चणक as follows (folio 67) :—

“ चणारुणाः । चणको वातलो रूक्षो विष्टंभी पुंस्त्वनाशनः ।
स कपायो लघुः शीतः पित्तास्रकफनाशनः ”

In the printed text of the *धन्वन्तरिनिघण्टु* (Ānandashram Sans. Series. Poona, 1896) p. 6, we find the following line about चणक and its properties :—

“ चणका वतुला शोका वातला रूक्षिहः ।”

In spite of the textual variations the reference to चणक and its properties has continued to exist in the extracts given above.

(54) Dhundirāja in his *Girvanapadamañjarī* (C. A. D. 1690-1700) mentions चणक as the product of Bengal along with बीहि, गोपू, बाजकी (of two kinds), माष, मुद्गर, मसूर, राजमाष, कुलत्प, लंडा, तिल, सूरक, विषगु, एणव, नीधार, श्यामाक,

1. Prof. Kane records the following verse from *सहस्रनाम* (quoted in *गृह*, *१*, and *अष्टमः प्रश्नः*) which forbids the use of cereals such as राजमाष, सूरक, मुद्गर (= बीहि according to Prof. Kane) etc. :—

“ राजमाषा स्थूलमुद्रास्तथा वृष्यवासकी ।
मसूरः शतपुष्पाश्च कुसुम्भः भीतिरेतनम् ॥
सत्पान्तेतान्यभक्ष्याणि न च देशानि कस्यचिद् ”

अक्षय, लक्ष्मी, and वसुध (Vide folios 13-18 of Ms No. 21 of 1919-1924 in the Govt. Mss Library, B. O. R. Institute, Poona.)¹

With a view to give the reader an idea about the antiquity of *Canaka* and its history as disclosed by the foregoing evidence I record below the chronology of the references so far collected by me :—

Chronology	Reference <i>C = Canaka (Cicer Arietinum)</i>
	C mentioned in the मेढसंहिता
	C mentioned in the काश्यपसंहिता.
Between B. C. 200 and A. D. 300	C mentioned in the नाट्यशास्त्र of भरत for use in worship.
A. D. 100-200	C mentioned in the चरकसंहिता.
Before A. D. 300	C mentioned in the सुश्रुतसंहिता as कुषाण्य; हरिसम्पन्न शाक is also mentioned in this work.
Between B. C. 200 and A. D. 300	C mentioned in the Jain Prakrit work <i>Pauma Cariya</i> as चण्य growing in the <i>Avanti</i> country.
A. D. 200-300	C mentioned in the गुह्यसमासतन्त्र.
A. D. 500	C mentioned in the बृहत्संहिता of बराहमिहिर. C (= चण्य) mentioned in the याजुस्संहिता of द्राक्ष.
Before A.D. 500	C mentioned in the पञ्चतन्त्र (मित्रमेव) as also the practice of frying it. C mentioned in दर्शनसूत्र of Jain canon (as चाण्डूया).
	चण्य mentioned in अमरसिंहसहि also.
Between A.D. 500 and 800	C mentioned in the वनकोश along with its synonym हरिसम्पन्न.
c.A.D. 625	C mentioned in the बृहत्संहिता of Vāgbhaṭa I.
A.D. 755 - 786	C (= चण्य) mentioned by रामोदरगुप्त of Kashmir in his कुहनीय.
A.D. 700 - 900	C mentioned in the बृहत्संहिता of Vāgbhaṭa II.
Before A.D. 800	C and its properties mentioned in the चण्यचरित्रविशेष.
A.D. 800 - 900	C mentioned in the अग्निपुराण—It is forbidden in religious fasts but recommended as food for horses.

1. See also my article on "Glimpses into the Economic, Industrial and Social Life of Bengal as given by a Mahārajāna Brahman of the Seventeenth Century" in *Indian Culture*, Vol. XII, No. 2 (October-December, 1948) pp. 47-56.

Chronology	Reference C = Canaka (Cicer Arietinum)
Before A.D. 1000	C recommended for horses in the <i>अथर्ववेद</i> of <i>मनुस्मृत्य</i> .
Before A.D. 1000	C used as food for elephants according to <i>इत्यायुर्वेद</i> of <i>पातञ्जल्य</i> .
Before A.D. 1000	C as food for Horses mentioned in <i>अथर्ववेद</i> of <i>वायस्य</i> (son of <i>विश्वाम</i>).
c.A.D.1050	C (= <i>चण</i>) mentioned in the <i>पैत्रपन्थी</i> lexicon of <i>वायस्यकाश</i> .
c.A.D. 1050	C mentioned by <i>श्रीरत्नामिद्</i> on <i>Amarakośa</i> , among 17 edible grains.
A.D.1060	C mentioned by <i>चक्रपाद</i> in his <i>वृक्षगुणसंग्रह</i> .
A.D. 1100	C mentioned in <i>सुरद्रीचरित</i> .
A.D. 1130	C mentioned in the <i>मानसोद्धार</i> of <i>सोमेश्वर</i> as food for men, pigs and fish.
A.D. 1143	C (= <i>चण</i>) mentioned in <i>सुपासनाद्वय</i> .
A.D.1159	C mentioned by <i>सर्वानन्द</i> on <i>Amarakośa</i> .
A.D. 1070-1100	C prohibited at a <i>श्राद्ध</i> by <i>विश्वामेश्वर</i> in his <i>विश्वामेश्वर</i> .
A.D. 1088-1172	C and its synonym <i>हिरिमन्थ</i> mentioned in the <i>देशानाममाळा</i> of <i>हेमचन्द्र</i> .
c.A.D. 1250	C (= <i>चण</i>) mentioned in the Marāṭhī Mahānubhāva text <i>छात्राचार</i> .
A.D. 1307	C used in Jaina ritual according to <i>विधिपत्र</i> of <i>विजयमल्ल</i> .
Between A.D. 800 and 1300	C mentioned in the <i>शुक्लनीतिसार</i> as best horse-food like <i>यव</i> .
c.A.D. 1450	C mentioned in the <i>शार्ङ्गधरसंहिता</i> .
c.A.D. 1450	C mentioned by <i>विद्यामयदेवी</i> in her <i>गङ्गाभाष्यावली</i> among grains to be offered by a pilgrim for a <i>वाद्</i> .
c.A.D. 1450	C mentioned in the <i>राजनिषण्ड</i> of <i>नरहरि</i> (in Kashmir). The pulse of <i>चणक</i> is called <i>राळी</i> .
A.D. 1475	C (= <i>pease</i> used for preparing <i>Kichiri</i> or <i>सिखरी</i>)—see <i>Hobson-Jobson</i> .
c.A.D. 1550	C mentioned in the <i>माधवकाश</i> of <i>माधवमिश्र</i> .
A.D. 1500-1650	C mentioned in the <i>भाकाश</i> <i>भैरवकेश</i> as being stored in a <i>अन्धकोठ</i> or granary.
A.D. 1500	C (= chick-peas) as food for Horses of <i>Vijayanagar</i> according to <i>Barbosa</i> .
A.D. 1513 onwards	C (= <i>gram</i>) references in <i>Hobson-Jobson</i> .
A.D. 1660	C and its pulse <i>राळी</i> mentioned in the <i>कल्पद्रुमकोश</i> .
A.D. 1641-1668	C used for Horses according to <i>Tavernier's Travels</i> .

Chronology	Reference C = <i>Canaka</i> (Cicer Arietinum)
c.A.D. 1700	C mentioned among Bengal grains by बुद्धिराज in his <i>गीर्वाणपद्मञ्जरी</i> .
A.D. 1811	C and its varieties mentioned by Francis Buchanan in his <i>Patna-Gaya Report</i> .

The cumulative effect of the evidence recorded in this paper proves the history of *Canaka* for about 2000 years on Indian soil. Some features of this history are as follows :—

(1) Some of the earliest medical texts like those of चरक, सुश्रुत, मेढर and काश्यप record the properties of चणक and their statements are more or less repeated in later medical texts.

(2) The synonym इतिम्भ for चणक used by सुश्रुत is mentioned by जमर and repeated by subsequent lexicons.

(3) सुश्रुत calls चणक as a कुशान्य. Its use at a आर ceremony was prohibited by *Smṛtis* as stated by विशाखेश्वर (c. A. D. 1100). In the 15th century, however, we find it as fit for a आर at a holy place according to गङ्गाधाराचरित of विद्यासाहेब.

(4) चणक is not mentioned as food for horses by the जयसिंह of कौटिल्य, in which चणक is prescribed as part of horse regimen. Some time after about A. D. 500 चणक began to be produced in large quantities and was adopted as horse-food as vouched by the horse-treatises of जयवर्ण, नकुल, वासुदेव (son of विश्वामित्र) and others. As expressly stated by वासुदेव in his जयवर्ण (चणकविधि) चणक was used as horse-food below the Vindhya mountains, while चणक was used for the horses between the Himalayas and the Vindhyas in his time.

(5) चणक is mentioned in the Jain Canonical works like the *अमलसूत्र* and the *जैनुदीपयशसि* as also in later Jaina works in Prakrit like the *सुप्रबुद्धीचरित* and the *सुप्रसन्नोद्धारचरित* of the 12th century and in the *विशिष्टा* of विजयवर्ण (A. D. 1307).

(6) After about 1000 A. D. चणक fell into back-ground and चणक took its place both as food for horses and men along with wheat and other grains of antiquity.

In view of the above history of चणक for a period of about 2000 years from Sanskrit and Prakrit sources we are tempted to inquire if चणक was indigenous to India prior to the Christian Era. In this connection I record the following history of चणक (*Cicer Arietinum*) as given

by Watt in his *Dictionary of Economic Products of India*, Vol. II, Calcutta, 1889, pp. 227-275 :—

Habitat — Extensively cultivated as a rabi crop, throughout India, especially in the Northern Provinces.

This is *Cicer* of the Romans, and the parched seed as an article of food with the poor is alluded to by Horace¹ (*Cicer Frictum*). It is also the *Erebinthos*² of Dioscorides.³ The botanical specific name owes its origin to a not altogether fanciful resemblance of the seed, when first forming in the pod to a ram's head (the *Krios* of the Greeks). The English name "gram" is applied to a totally different product in the Madras Presidency, where it denotes the seed of the plant known in the other provinces as *Kurti* (*Dolichos biflorus*) (Duthie and Fuller, *Field and Garden Crops*, I, 33). In Madras *D. biflorus* is more correctly horse-gram, two forms of *Phaseolus Mungo* being known as "black and green gram" and *Cicer* as "*Bengal gram*." These terms are, however, unknown in other provinces.

History — The Chick-pea was thus known to the Greeks in Homer's time⁴ under the name *Erebinthos* and to the Romans as *Cicer*; and the existence of other widely different names shows that it was early known and perhaps indigenous to the South-east of Europe. It is supposed that the Chick-pea has been cultivated in Egypt from the very earliest times of the Christian era and was perhaps considered common or unclean like the bean and lentil. But it is most likely that the pea was introduced into Egypt as well as among the Jews from Greece or Italy. Its introduction into India is of more early date for there is a Sanskrit name and several other names in modern Indian languages. "The Western Aryans (*Pelasgians, Hellenes*) perhaps introduced the plant into Southern Europe, where, however, there is some probability that it was also indigenous. The Western Aryans carried it into India. Its area may have extended from Persia to Greece and the species now exists only in

1. Horace, the Roman poet was born on 8th December, B. C. 65 and died on 17th November, B. C. 8. (Vide pp. 270-271 of *Smaller Classical Dictionary*—Home University Library, London, 1913).

2. Has the Greek word *Erebinthos* for चणक any connection with (हृत्पिण्ड) used by कृष्ण as a synonym for चणक ?

3. *Dioscorides*, a Greek physician of the 2nd century A. D. author of an extant work on *Materia Medica*, which for many ages was received as a standard production (Sm. *Class. Dict.*, p. 197).

4. Homer's date is about 850 B. C. see p. 268 of *Sm. Class. Dict.*—

cultivated ground, where we do not know whether it springs from a stock originally wild or from cultivated plants" (*De Orig. Cult. Pl.*).

On the strength of the above remarks we can represent the chronology of अणक or हरेमन्थ prior to the Christian era as follows:—

B. C. 1000-800 — अणक or हरेमन्थ (Greek, *Erebinthos*) in time of Homer.

B. C. 521-485 — *Darius I* ruled Persia—His wars against Greece—
"The direct acquaintance of the western nations with India dates from the reign of Darius" (Smith; *Sm. Clas. Dict.* p. 280).

B. C. 326 — Expedition of *Alexander the Great* against India.

B. C. 305 — Invasion of *Seleukos Nikator* against *Candragupta* Maurya and conclusion of a humiliating peace with *Candragupta* in B. C. 303.

B. C. 298-273 — Indian Emperor *Bindusara* (father of *Aśoka* the Great) corresponds with *Antiochus Soter* of Syria and gets figs and raisin wine

B. C. 190 - c. A. D. 20 — Greek occupation of Panjab.

B. C. 65-8 — The Roman poet Horace refers to *Cicer* (अणक) as an article of food with the poor.

B. C. 100 - A. D. 300 — References to अणक in earliest Indian medical texts in Sanskrit of मेरु, अरक, सुश्रुत and काश्यप as also in the Jaina Canonical and other Prakrit texts.

Presuming that Southern Europe comprising Greece and Italy was the native habitat of अणक, from which it was taken to Egypt in the earliest times of the Christian era, and further that अणक was taken to India by the Western Aryans (Hellenes) as observed by *De Candolle*, we may tentatively draw the following conclusions:—

(1) If अणक was introduced into India during the reign of *Darius I* of Persia (B. C. 521-485) this introduction must have been possibly through Persia on account of the constant military contact of Persia with Greece at this time.

If अणक was introduced into India after the invasion of *Alexander the Great* in B. C. 326, it would be reasonable to suppose that it was introduced most probably during the Greek occupation of Panjab (B. C. 190 — c. A. D. 20). This conclusion is in harmony with the references to अणक in the earliest medical texts of मेरु, अरक, सुश्रुत and काश्यप, which appear to

have been composed between c. B. C. 200 and A. D. 300. Foreigners staying in India for more than two centuries may have introduced some plants of their home land into India. Such of these plants as found congenial soil in India became naturalised while others dropped out of Indian cultivation.

(3) It is for Greek and Latin scholars to say if the use of *अमृत* as horse-food was current in Greece and Italy say between B. C. 1000 and A. D. 300. If no evidence can prove this point we may reasonably infer that the use of *अमृत* as horse-food was evolved by Indians some time after about A. D. 500.

25. Studies in the History of Indian Plants — History of Canaka (Gram) as food for Horses

Between c. A. D. 800 and 1870 together with some notes on
the import of foreign horses into India in ancient
and Mediaeval Times*

A friend of mine in the Bombay Agricultural Department, who was interested in the history of several Indian crops, once asked me if I could study the history of *Canaka* or *gram* used by men and horses in India to-day. I promised him to write some paper on *Canaka* and its antiquity on the strength of Indian sources. I put a counter-question to my friend: *Can you tell me when Canaka or gram came to be used as food for horses?* My friend could not answer this question for want of evidence. I, therefore, propose to record in this paper some evidence which throws some light on this question from the Sanskrit and non-Sanskrit sources available to me.

Yule and Burnell have recorded some useful information on *Gram* or *Canaka* in the *Hobson-Jobson*, London, 1903, pp. 392-393 as follows:—

GRAM s. — This word is properly the Portuguese *grão* i. e. 'grain' but it has been specially appropriated to that kind of vetch (*cicer arietinum*, L.) which is the most general grain — (rather pulse —) food for horses all over India, called in H. *Chana*. It is the Ital. *cece*, Fr. *pois chiche*, Eng. *chick-pea* or Egypt. *pea* much used in France and S. Europe. This specific application of *grão* is also Portuguese as appears from Bluteau. The word *gram* is in some parts of India applied to other kinds of pulse, and then this application of it is recognized by qualifying it as *Bengal gram*. (See remarks under **CALAVANCE**). The plant exudes oxalate of potash, and to walk through a gram-field in a wet morning is destructive to shoe-leather. Thenatives collect the acid."

The following dated usages of the word **GRAM** are then recorded in the *Hobson-Jobson* :—

A. D. 1513 — "And for the food of these horses (exported from the Persian Gulf) the factor supplied *grãos*"

— *Albuquerque, Cartas* p. 200

Letter of December 4,

* *Annals* (B. O. R. Institute). Vol. XXVI, pp. 89-105.

A. D. 1554 — (Describing Vijayanagar) — "There the food of horses and elephants consists of *grāos*, rice and other vegetables cooked with *jagra*, which is palm-tree sugar, as there is no barley in that country"

— *Castanheda*, Bk. ii, Ch. 16

c. A. D. 1610 — "They give them also a certain grain like lentils"

— *Pyrard de Laval*. Hak. Soc. ii, 79.

A. D. 1702 — ".....he confessing before us that their allowance three times a week is but a quart of rice and gram together for five men a day, but promises that for the future it shall be rectified"

— In *Wheeler*, ii, 10.

A. D. 1776 — ".....Lentils.....gram.....mustard seed"

— *Halhed's Code*, p. 8 (Pt. ii).

A. D. 1789 — "*gram*, a small kind of pulse, universally used instead of oats"

— *Munroe's Narrative*, 85.

A. D. 1793 — ".....*gram* which it is not customary to give to bullocks in the Carnatic"

— *Dirrom's Narrative*, 97.

A. D. 1804 — "The gram alone for the four regiments with me has in some months cost 50, 000 pagodas"

— *Wellington*, iii, 71.

A. D. 1865 — "But they had come at a wrong season, gram was dear, and prices low and the sale concluded in a dead loss"

— *Palgrave's Arabia*, 290.

Gram-fed — adj. Properly the distinctive description of mutton and beef fattened upon *gram* which used to be the pride of Bengal. But applied figuratively to any 'pampered creature.'

In the article on CALAVANCE (*Hobson-Jobson*, p. 145) we are told that the word *Calavance* comes from the Span. *grabanos*, which *De Candolle* mentions as Castilian for '*pois chiche*' or *cuer arietinum* (= *gram*).

The above usages of *gram* as food for horses and men, take its history upto A. D. 1513. I shall now trace this history backward from A. D. 1513.

Narahari in his medical glossary called the *Rajanighapsu*¹ composed

1. Quoted on p. 212 of *Arjuna Samhita* by K. M. Vaidya, Trichur, 1936.

in Kashmir c. A. D. 1450¹ refers to चणक or gram as "बाजिमच" (food for horses) in the following verse :—

"चणस्तु हरिमयः स्यात् सुगन्धः कृष्णकन्तुकः ।
बालमोच्यो बाजिमचश्चणकः कन्तुषी च सः ॥"

In the two special treatises on horses, which are definitely earlier than Narahari's *Rajamishkanfu* we get some references to *Canaka* as food for horses. These treatises are (1) *जयवैद्यक*² of महासामन्त जयदत्त and (2) *जयचिकित्स*³ of नकुल.

References to चणक in the *जयवैद्यक* of जयदत्त are as follows :—

Page 106 (chap. 11 — *अष्टमाश्रा विवरणम्*)

"चणकाश्चैव मायाश्च ये चान्ये ग्रीह्यस्तथा ।

यथाहं प्रयोक्तव्या देशासामयेन त्वादेन ॥ ६ ॥"

Here चणक or gram is definitely prescribed for the regimen of horses along with यव,⁴ माष, and ग्रीहि. The editor in explaining the above observes :—

"बाजिनां भोजनाय यवादीनां एवं मात्रा ; एकदिने यवस्य आठक-चतुष्टयं । चणक-माषबीजादीनां आठकद्वयं मात्रा । मुद्गास्य च प्रत्यक्षं । यत्र यत्र भोजने स्नेह्यवस्था सर्वत्रैव स्नेहस्य कुडवत्वं लवणस्य कुडवो देयः ।"

Then the editor quotes the following verse from *अग्निपुराण* :—

"चणुकग्रीहिमौद्गानि कलावं वापि दापयेत् ।

अश्वोराश्वेयचार्दस्य यवस्य तुला दश ॥

अथै शुक्रस्य दातव्याश्चतस्रोऽप्य मापस्य तुपस्य वा ।"

इति अग्निपुराणम् । एवं माषभोजनेऽपि मापस्य ३ प्रस्थाः तैलस्य ३ कुडवाः । लवणस्य च कुडवः ॥"

1. Hobson-Jobson (p. 476) refers to *Kitchery* (चिकरी) as food for horses :— "c. 1475 Horses are fed on *pease* ; also on *Kichiris*, boiled with sugar and oil etc." — *Abdurrasak* in *India* 15th Century, p. 10 — Does "pease" here mean chick-peas or *चना* ?

2. Edited by Umesa Chandra Gupta in *Bibliotheca Indica*, Calcutta, 1886, pages 335. A Glossary of *Indian Drugs* mentioned by Jayadatta, together with their *Bengali, Hindi and Latin* synonyms, is given by the Editor at the end of this edition. In this glossary *अहिनि* or *opium* is mentioned on p. 3.

3. Edited by Umesa Chandra Gupta, Bib. Indica, 1887, pages 63.

4. *हयवैद्यक* (A. D. 1088-1172) in his lexicon *अष्टाश्राध-सामग्री* (मुद्रिकाण्ड, 236) mentions दधि as the favourite of horses :— "दधौ हयप्रियः" (Comm. "हयानां प्रियः हयप्रियः"). He refers to चणक in verse 237 as "चणको हरिमचक" and explains "चणो दध्याय चणः" and "हरिनिः शब्दो हरिमचकः" *Amara* mentions चारुणि horses and हरिमचक (= चणक).

Chapter 13 deals with the treatment of horses in different seasons (सर्ग-चतुःपचार). Special attention is given to the food¹ of the horses in these seasons. Among articles of food for the autumn (सर्ग) we find मांसपूष (meat-broth) and for the winter (हेमन्त) some wine (पाणी) also. Wine (मदिरा) is also prescribed for the spring (वसन्त). In chapter 22 dealing with treatment of horses for removing fatigue (चान्तोपचार) मांसरस flesh juice is prescribed along with यव (barley). In chapter 40 dealing with the treatment of horses in fever (ज्वरविवरण) मांसरस-मोदन or rice-boiled with flesh juice is prescribed. Chapter 66 (रसोनकषय) prescribes the several uses of garlic in 22 verses. Garlic is said to be specially beneficial to old horses (वृद्धेषु च विशेषेण रसोनम् प्रदापयेत्). References to चणक as food for horses in the अथर्वकिसित of नकुल are as follows :—

Page 39 — chapter 11 (चतुर्वर्षा) prescribes the use of gram (चणक) in the absence of यव in the following verse :—

“यवोरथं यवसं दद्यादेकविंशत्यहानि च ।

यवाऽभावेऽप्य चणकान् दद्याद्द्विंशतरान् सदा ॥ १० ॥”

नकुल praises very much the use of यव for feeding the horses as follows :—

“देवतानां यथा विष्णुर्नृणां वेदविदां वरः ।

नदीनाम् यथा गङ्गा तथा भेडा यथा ह्ये ॥ १४ ॥”

यव had been the sustainer of the Aryans from Vedic times and consequently नकुल lavishes so much praise on it. The Vedic Aryans² may have used यव for their horses. नकुल and जयद्वय prescribe यव as food for horses. यवस is prescribed by नकुल for horses. Keith in his *Vedic Index* (Vol. II, p. 117) states that “यवस in the Rgveda and later denotes the ‘grass’ on which animals feed and which is burnt by the forest fire.”

1. Cf. *Ain-i-Akbari* (A. D. 1590) (Blochmann) Vol. I (1873) — *Ain* 49 on Imperial Horse Stables — The regimen includes *peas, grain, flour, sugar, fresh grass, ghee, hay, molasses, salt, brown sugar, green oats* for regular horses — Regimen for foals includes *milk of cows*.

2. In the *Vedic Index* (Vol. I — “अथ,” Keith and Macdonell do not refer to the use of यव for horses. In the *Arthashastra* Kautilya refers to यव in the regimen for horses in his chapter on *सञ्चारयन्त्र* (Book II, chap. 30) p. 147 of Eng. Trans. by Shamastri, 1929.

“For the best horse (the diet shall be) two *drogas* of any one of the grains, rice (शर्णि, शर्णि), barley (यव), panic seeds (मिष्टु) soaked or cooked, *mudga* (Phaseolus Mungo), or *Masa* (Phaseolus Radiatus) ; one *prastha* of oil, 3 *palas* of salt, 30 *palas* of flesh, one *afhakha* of broth (rasa), or two *afhakha* of curds, 3 *palas* of sugar (Kṣāra), to make their diet relishing, one *prastha* of *sura* liquor or two *prasthas* of milk.”

There is no reference to चणक in the *Word-Index* to the *Arthashastra*,

Page 42 — नकुल continues his praise of यव in the following lines :—

“ परीक्षामो यथा हेनः स्नेहस्य च प्रतिक्रिया ।
 हयजीवस्य तद्वच्च परीक्षा यवभक्षणे ॥ ३२ ॥
 यथा सांपात्रिकः पारं गतोचैः स्वस्थतां नञेत् ।
 तद्वत् यवाशनोत्तीर्णाः शुद्धदेहा हयोत्तमाः ॥ ३३ ॥ ”

Page 43 — When नकुल wrote his treatise यवक had attained quite an important status in the regimen of the horses. In fact it was considered as the second best grain for horses (next to यव) as will be seen from the following verses :—

“ यवाऽभावेऽप्य यवका पान्यमन्यतमं परम् । ”
 “ एते पुष्टिगुणाः प्रोक्ताश्चणका ह्यारजा हये । ”

In the detailed regimen of horses Kauṭilya mentions numerous items except यवक. I am, therefore, inclined to suggest that यवक was not used as food for horses in Kauṭilya's time. The question now arises as regards the exact time when यवक came to be used as food for horses or “ चात्रियकम्.” It appears that when नकुल wrote his treatise the use of यवक was getting into vogue as food for horses. We must now find references to यवक as food for horses in sources earlier than the time of अयत्त and नकुल the authors of अयत्तवैद्यक and अहवधिकिसिक्त respectively. But what is the time of अयत्त and नकुल? In connection with this question the following data may be recorded :—

(1) In the Vedic times “Horses from the Indus were of special value as also horses from Sarasvati (see p. 43 of *Vedic Index* (Keith and Macdonell).

(2) The *Arthasāstra* of Kauṭilya (p. 148 of Eng. Trans., 1929) mentions the following varieties of horses :—

(i) *Kamboja*, (ii) *Sindhu*, (iii) *Araṣṭa* and (iv) *Vanāyu*—These are the best breeds and (v) *Bahlika*, (vi) *Papeya*, (vii) *Sauvra* and (viii) *Taitala* are breeds of middle quality.

(3) अयत्त in chap. VI of his अयत्तवैद्यक mentions the following kinds of horses :—

Best kinds :—(1) चात्रिक Arabian horses)
 (2) पारसिक (Persian)
 (3) केकाल or कोङ्काल

other kinds are (4) तुरी आलाः or तुलुकाः, (5) कीराः, (6) गृहहाः, (7) माण्डवाः, (8) पार्थवाः, (9) वेण्वाः, (10) सारस्वताः, (11) समलाः, (12) कसाः, (13) जट्टेक्षोन्नवाः, (14) चाप्यिजोन्नवाः, (15) पञ्चभोजवाः, (16) पाणिनायाः, (17) र्षीरेक्षसमुन्नवाः etc,

(4) नकुल in chap. II of his *महचरित्र* mentions the following kinds of horses.—

- Best kinds* :— (1) साजिका: (Arabian)
(2) खुरसाना: (Khorāsān)
(3) उषरा: (variant तुषारा:)

Other kinds :— (4) गोजिकाणा:; (5) केकाणा:, (6) ग्रीवाहारा: (variant पोषहारा:);
(6) माण्डजा:; (8) राजधूला:; (9) गोहारा:; (10) सावरा, (11)
सिन्धुपारा:.

The above list of numerous kinds of horses known to Indians in the time of जयदण्ड and नकुल contains a eulogy of साजिक (Arabian), पारसिक (Persian) and some other foreign breeds of horses like तुर्क (Turkish) and खुरसान (Khorāsān) varieties. This popularity of *Persian, Turkish, Khorāsān, Arabian* and other foreign breeds clearly shows that the importation of foreign horses into India was an established feature of foreign commerce with India at the time when जयदण्ड and नकुल composed their treatises on horses.

(5) *Marco Polo* in his *Travels*¹ (A.D. 1298) records some references to horses of different countries as follows :—

*Page 28 — Horses in Turkomania.*² Marco Polo observes :—

"There is here an excellent breed of horses which has the appellation of *Turki* and fine mules which are sold at high prices." The *Turki* breed of horses is esteemed throughout the East for spirit and hardiness. (Compare तुर्क horses mentioned by जयदण्ड).

Page 50 — Horses in Persia

"The country is distinguished for its excellent breed of horses many of which are carried for sale to India and bring high prices not less in general than two hundred livres tournois."³

1. Ed. by Thomas Wright, London, 1901.

2. "Turkomania" then comprised the possessions of the great Seljuk dynasty in Asia Minor, says the Editor, Mr. Wright.

3. Wright observes :—The excellence of the *Persian horses* for which they may perhaps be indebted to the mixture of the *Arabian and Turki* breed, is well known. A detailed account of their qualities is given by Chardin (tom ii, chap. viii, p. 25, 4 to); and also by Malcolm (*Hist. of Persia* Vol. ii, p. 516). As the *livre tournois*, in the 14th cent. was at the proportionate value of 25 to 1 *livre* of the present times, it follows that the price at which the *Persian horses* were sold in India was from 1500 to 2000 rupees."

Cf. Vincent Smith (*History of India*, Oxford, 1914, p. 426)—King Pulakherin II of the Deccan sent an embassy to Khusrū II of Persia in A. D. 625. Khusrū sent a return embassy to Pulakherin. A picture of this return embassy is found on an Ajanta fresco painting in Cave No. 1.

"The traders of these parts convey the horses to Kisi, to Ormus, and to other places on the coast of the Indian sea, where they are purchased by those who carry them to India. In consequence, however, of the greater heat of that country, they do not last many years, being natives of a temperate climate."

Page 134 — Horses of Tartars fed on grass alone.

The Tartars "are capable of supporting every kind of privation, and when there is a necessity for it can live for a month on the milk of their mares and upon such wild animals as they may chance to catch. Their horses are fed upon grass alone and do not require barley or other grain. (Contrast the Indian regimen for horses consisting of दध, घनक and मसूर्य mentioned in the अथर्ववेद and अथर्वविहितानि of जयदत्त and नकुल and the rich diet for horses given by the *Arthasāstra* in its chapter on अश्वपचक).

"The men are habituated to remain on horse-back during two days and two nights, without dismounting, sleeping in that situation whilst their horses graze."

Page 262 — Horses bred in Karaian¹

"The best horses are bred in this province," (Wright observes :—"This is probably the same breed as the *tangun* or *tanyan* horses of lower Tibet, carried from thence for sale to Hindustan. The people of Butan informed Major Rennel that they brought their *tanyans* thirty-five days journey to the frontier" (Cf. जयदत्त mentions दकुल breed :—"बहुलद्वयापि इत्यत्र दकुलः परिधीयते."

Page 266 — Horses bred in Karazan

"In this province the horses are of a large size and whilst young are carried for sale to India. It is the practice to deprive them of one joint of the tail, in order to prevent them from lashing it from side to side, and to occasion its remaining pendant, as the whisking it about, in riding, appears to them a vile habit." ²

1. Wright states that *Karaian* is generally understood to be north-western part of *yun-nan*. Dr. F. Buchanan (*Asiatic Researches*, Vol. iv, p. 228) writes this word as *Karayan*. He also speaks of *Ku-Kiun* a wild people on the frontiers of China. 333 334 mentions a breed of horses of the name *कुवान* (variants *कुवान*, *कुवान*, *कुवान*). नकुल also mentions the *कुवान* breed. Has *कुवान* or its phonetic variants any connection with *Ku-Kiun* people on the frontiers of China, mentioned by Buchanan?

2. Wright states that *Karazan* is another province of *Yun-nan*—It appears that the practice of docking the tails of horses by separating one or more of the vertebrae, which has become so common in England existed many hundred years ago amongst the people of *Yun-nan*, in the remotest part of China—Chinese pronunciation of *Karazan* would be *Ka-la-Shan*.

Page 386 — No horses are bred in Mabbar but they are imported from Arabia.

—“No horses being bred in this country the king and his three royal brothers expend large sums of money annually in the purchase of them from merchants of Ormus, Diufar, Pecher and Adem etc.”

—“The climate of the province is unfavourable¹ to the race of horses.”

—“For food they give them flesh dressed with rice, and other prepared meats, the country not producing any grain besides rice.”

Page 420 — Horses exported to India from Kanan or Tana.

—“They likewise take on board a number of horses to be carried for sale to different parts of India.”²

Page 439 — Horses from Aden exported to India.

“In this port of Aden, likewise, the merchants ship a greater number of Arabian horses, which they carry for sale to all the kingdoms and islands of India, obtaining high prices for them and making large profits” (cf. the statement of जयदण्ड and नकुल that शबिक or Arabian horse belongs to the best class of horses.)

Page 443 — Horses exported to India from Kalyati³ or Kalatu.

“Its harbour is good, and many trading ships arrive there from India These likewise carry away freights of horses, which they sell advantageously in India.”

It is clear from the foregoing references of A. D. 1298 about the importation of Persian, Arabian, Turkish and other breeds of horses to India that these horses enjoyed a wide popularity in Indian kingdoms and that this Indo—foreign trade in horses was already an established feature

1. Wright observes :—“Even at the present day there is no breed of horses in the Southern part of the peninsula, and all the cavalry employed there are foreign.” जयदण्ड also considers the horses bred in the Eastern and Southern country as जयम or of low quality :—

“अथमाष्टक्यैः शार्दं द्वये प्राग्दक्षिणोद्भवाः”

“दक्षिणात्यो भवेदुत्थो योऽथन्यः सर्वबाजिनाम् ॥ १७ ॥

जवहीना महादुष्टाः पूर्ववैरागुसद्भवाः ।”

2. Wright observes :—“Horses were carried from the Red Sea, Persian Gulf, and places in their vicinity to the northern parts of India, from whence their breed was exported to the southern provinces. Such at least appears to have been the course of the traffic before it was disturbed by European influence.”

3. Kalyati is Kilihat, on the Coast of Oman, not far to the southward of Muscat.

of the commercial relations of India with other countries. It is on this account that we find a definite mention of पारसिक, गुरुक and ताजिक horses in the treatises on horses by जयवर्धन and नकुल.

(6) The Western Calukya King सोमेश्वर composed his encyclopaedic Sanskrit work मानसोद्घात¹ about A. D. 1130 i. e. about 168 years earlier than Marco Polo's *Travels*. In this work there is a chapter on वाजिवाहाली-विनोद or the game of Indian Polo.² The king should understand the kinds of the best horses for this game brought before him by his officers (निर्वा जातीः परीक्षित देशनामभि भिदन्ः). Someśvara then names the following classes of horses.

Best Horses — (1) काबोज, (2) यवन, (3) तेजी, (4) बाल्दीक, (5) आतल, (6) तास्लारक, (7) केकाण, (8) बोहार, (9) कान्दलेय, (10) मोषेय (11) वाजयेयक, (12) वनायुज, (13) पारसीक.

Middle Breeds — (14) तैलिल, (15) वल, (16) कान्धार, (17) वामतेय, (18) तैन्धय, (19) साविथ, (20) पार्वतेय, (21) कामोर, (22) साम्भतोयक, (23) तेजी, (24) कुलज, (25) नीहार, (26) सारस्वत, (27) वुरुक.

Inferior Breeds — (28) मेदक, (29) आर्जुनेय, (30) वैगर्त, (31) गुर्ज, (32) राजस, (33) आवन्य, (34) सौराष्ट्र, (35) पारियाय, (36) सहारक, (37) दुग्धवाट, (38) स्तम्भवाट etc.

It will be seen from the above list that many foreign breeds of horses such as पारसीक, गुरुक, सोस्लारक, केंकाण, बाल्दीक, तेजी etc. were considered best horses about A. D. 1130, when Someśvara ruled in the Deccan. The question of the identification of all these breeds of horses mentioned by सोमेश्वर, as also those mentioned in other works will have to be considered separately as such identification has a direct bearing on the history of foreign commerce with India.

In the वाजिवाहाली (Indian Polo) chapter referred to above there is no occasion for सोमेश्वर to mention the food for the horses. Accordingly there is no mention of चणक or gram in it³.

1. Ed. by G. K. Shrigondekar. G. O. S. Baroda. Vol. II. 1939.

2. Ibid. pp. 211—224—वाजिवाहाली विनोद—It is worth while comparing the horse-lore in this chapter with that in the horse-treatises of जयवर्धन and नकुल. See also Mr. G. K. Shrigondekar's paper on "Indian Polo" in the Proceedings of the Indian Ori. Conference, Allahabad, of 1926.

3. I note here some references to चणक and its uses found in the मानसोद्घात Vol. II (Baroda) 1939.

P. 10—चणकोदन (rice boiled with gram) used for वास्तुपुत्रयन.

P. 115—Chapter on जम्बीय—चणक to be used in cookery after grinding it in a घाघु—हरिकण (= चणक) pulse fried with spices (p. 119).

(continued on the next page)

(7) The lexicon *Amarakośa* mentions *सिन्धव* as the name of a horse (see *चरित्रवर्ण* of Kāṇḍa II of *Amarakośa*, ed. by N.G. Sardesai and H.D. Sharma). It mentions also four breeds of horses as follows :—

P. 185 —“४९—वनायुजः पारसीकाः काश्मीर्या वाहिहका इत्याः”. The commentator *श्रीरत्नामिन्* explains :—“एते ज्ञाताः इयस्मिन्नेषाः । एवं तुक्कारादयोऽपि”

The *Amarakośa* (between A.D. 500 and 800) refers to the पारसीक or Persian horses. This reference is important as it is one of the earliest references to पारसीक horses we have so far recorded. *श्रीरत्नामिन्* adds the तुक्कार breed to the four breeds mentioned by *Amara*. The date of *श्रीरत्नामिन्* is about A.D. 1050.

(8) The *Brhatsamhita* of Varāhamihira (c. A. 500) contains a small section on *वज्रवलय* (chap. 66 in 5 verses) but it mentions no breeds of horses in it though it mentions *चणक*.

(9) Nīrahari in his medical glossary called *राजनिघण्टु* of c.A.D. 1450 refers to the following breeds¹ of horses :—

(1) भारहृ, (2) सिन्धुज, (3) वनायुज, (4) पारसीक, (5) कांक्षोज, (6) वाहिहक, (7) साम्राज, (8) शकक.

(10) During the Polonnaruva period of the history of Ceylon (A.D. 1017-1235) horses, chariots and elephants were used at times in warfare but an army of which they formed part was rather the exception than the rule because there were no convenient routes to follow in a thickly wooded country like Ceylon. The soldiers as a rule travelled on foot and the generals were carried in palanquins with parasols held over them as a sign of their authority.² Ceylon's trade with the West began very

(continued from the previous page)

P. 261—Chapter on *मर्षय विनोद*—*चणक* pulse to be given to the buffalo used for light.

P. 273—Chapter on *मर्षय विनोद* (*Angling*)—Balls of *चणक* पिट or gram flour with boiled rice to be used for feeding fishes.

Pages 283-286—*Boar-hunt* (शरङ्गमत्त) is described. Boars are every food of *चणक* (सुकराः *चणकोत्पन्नाः*)—several uses of *चणक* for tempting the boars before the king hunted them are described.

The foregoing references clearly prove that in A.D. 1130 the use of *चणक* or gram for feeding buffaloes and boars was an established practice.

1. Vide p. 35 of *सप्तविंशतिका* by K. M. Vaidya, Trichur, 1936—*राजनिघण्टु* is quoted here as follows :—

“श्वारहसिन्धुजवनायुजपारसीक—
काश्मीर्यावाहिहकमुला विविधास्तुरगाः ।
साम्राज्यरोषकमुला अपि देशतः स्युः ”

2. Vide p. 91 of *Early History of Ceylon*, by G. C. Mendis, 1938,

early. It is not certain whether the Arabs had dealings with Ceylon before the Christian Era. From the 2nd century A.D. to the early part of the 3rd century Greek traders came to Ceylon. There was a revival of trade after Constantine (A.D. 323-337) who made Byzantium the capital of the Roman Empire. Persians, who were Christians of the Nestorian sect also traded with the South-west of India and Ceylon but their trade ceased in the 7th century when Persia was captured by the Muslims. The conquest of Alexandria by the Caliphs in A.D. 639 stopped Ceylon's direct trade with Byzantine Empire. Before the end of the 10th century the Arabs established a trading settlement in Colombo.¹ In view of these circumstances it is doubtful if any foreign breeds of horses were imported to Ceylon as they were imported to India from Persia and Arabia say from A.D. 800 onwards.

(11) We have already seen that *अपवर्ण* and *नकुल* have stated that the breeds of horses from the *दक्षिणार्ण* and *पूर्व* (Southern and Eastern) countries or provinces were of the most inferior quality (*अपवर्ण*). During the rule of the Pal dynasty in Bengal (A.D. 750-1200) cavalry was not neglected because they had to fight with Pratharas who were strong in cavalry. Bengal had no good breed of horses. Horses were imported from foreign countries. It is said in the Mongyr plate of Devapāla (A.D. 810-850) that the horses met their old mares in the Kamboja country. Kamboja was reputed for the finest breed in ancient times.²

(12) Dr. B.C. Law in his learned article³ on "Animals in Early Jain and Buddhist Literature" recently published, records the following interesting information⁴ about horses gathered from the *Jātakas*:—

"Horses — Sindh horses are milk-white and thorough-bred (*Jātaka* Nos. 22, 23, 160, 211, 529, 547, 538). They are white as lilies, swift as the wind and well trained (*Ibid*, Nos. 544, 266, 547). Horses like to eat *pear* (*Ibid*, 176). Thorough-bred horses are fed on parched rice drippings broken

1. *Ibid*, pp. 73-74.

2. Vide p. 143 of *Early History of Bengal* by P. L. Paul, Calcutta, 1939.

3. *Indian Culture*, Vol. XII (July-Sept. 1945), pp. 6-7.

4. Dr. A. D. Pusalker has drawn my attention to the following references to Horses in Dr. B. C. Law's *Tribes in Ancient India* (B. O. R. Institute, 1944):—"Horse-dealers figure prominently amongst the *Gandhara* traders and we learn from the *अपवर्ण* that the *Gandhara* horses were considered the best of all (ch. 99) (Page 17)—"Horse dealers from northern districts used to bring horses to *Benares* for sale (*Jātaka II* p. 287). *Sindh* horses were available in *Benares* and were used as the royal horses of ceremony (*Jātaka II* p. 338) Law p. 112.

meats and grass and red rice-powder (Ibid No. 254). There are big chest-nut horses (*Suhamu Jataka* No. 158). Horses are fierce (Ibid No. 115). When they become rogue they bite quiet horses, but when two rogues meet they lick each other's body (Ibid No. 158). The horse can also imitate men. A horse watching its tame trainer as he trampled on and on in front imitated him and limped too (*Giridanta Jataka* No. 184.) A thorough-bred war-horse will not bathe in the same place where an ordinary horse took its bath (Ibid No. 25). Horses were employed for drawing state-chariots (Ibid No 22) and cars (Ibid No. 211). Thorough-bred *Sindh* horses sheathed in mail were used for war purposes (Ibid, No. 23; cf. Ibid, No. 547). The *Valaha* and *Sindhu* are the horses of superior breed (*Barhut*, III, Pl. XXVI, fig. 136).

There was a trade in horses (*Jataka* Nos. 4 and 5). There were *valuers* employed by kings to fix the proper price of horses, elephants and the like (Ibid, No. 5). Good horses used to fetch high prices. A high-bred foal was sold at Benares at a high price, separate price was paid for the foal's four feet, for its tail, for its head — six purses of a thousand pieces of money, one for each (Ibid, No. 254). This horse could run at such a high speed that nobody could see it at all. It could run over a pond without getting its hoofs wet, and gallop over lotus leaves without even pushing one of them under water (Ibid, No. 254) — There was a flying horse, white all over and beaked like a crow, with hair like *muñja* grass, possessed of supernatural power, able to fly through the air. From *Himālaya* it flew through the air until it came to Ceylon. It carried 250 men at a time (*Valahassa Jataka* No. 196)."

There is no reference to ~~अणु~~ or gram as food for horses in the above account of ancient Indian horses, though it refers to *rice*, *meat*¹ and *grass* as food for horses. The *breeds* of horses mentioned in this account are *valaha* and *Sindhu* only. The reference to *trade in horses* is in harmony with the references to such trade recorded by me already in this paper.

(13) In view of the Indo-foreign horse-trade referred to in the Indian and Foreign sources of history the following remarks of Geoffrey

1. Geoffrey Brooke in his book "*The Way of a Muslim with a horse*" (London, 1929) has dealt with the question of *feeding of sickhorses*. He prescribes *eggs, milk, bread, biscuits, beer and wine* for supplying nourishment in a concentrated form. *Beer, Stout and Wines* are to be given chiefly to stimulate appetite. A quart of *Beer or Stout* and $\frac{1}{2}$ bottle of wine are to be usually given (P. 101). "A horse that does not appear to be thriving may be given a wine-glass-ful of *Cod-liver oil* in thrice the amount in treacle mixed in his feed once a day."

Brooke in his book, "*The Way of a Man with a Horse*" (London, 1929) on the history of the Horse and Horsemanship will be read with peculiar interest :—

Chap I —The Horse.

" Throughout the past ages to the present day we find the horse's many qualities appreciated and turned to the use of man. His courage and endurance have repeatedly been recognized as dominant factors in war and his original use for this purpose dates back to pre-historic times. Archaeological evidence proves this to have been the case in *India, Persia, Assyria, and Egypt*, where the horse was bred and trained as a means of conveyance. In 2737 B. C. the Chinese¹ are known to have made use of cavalry. Amongst other places in the *Bible* we find in the *Book of Kings*, reference made to Solomon's captains, rulers of his chariots and his horsemen. The cavalry of *Alexander the Great*² was famous in their days throughout his many campaigns. We know too that the ancient Greeks were highly skilled horsemen and devoted much of their time in equitation. There is both sound advice and practical knowledge to be derived from *Xenophon's treatise on horsemanship*. It is interesting to note that *Herodotus* in his book *Thalia* refers to *Darius* sustaining an accident when hunting on horse-back. We know of course that the *Egyptians, Phenicians and Romans* employed horses in chariots in addition to normal cavalry of those times.

Throughout past centuries to this day the *Arabs* have been recognized as a nation of horsemen and it is to these people and their particular breed of horse that we owe the wonderful *Thorough bred of modern times*.

1. Vide "*Ceremonial Usages of the Chinese*, B.C. 1121, Translated by W.W. Gungell, London, 1872—This Chinese classic (3000 years old) refers to royal chariots and banners (pp. 18-26). It describes how men of the *Chow Dynasty (1121 B.C.)* paid particular regard to carriages and then records in detail the principles of carriage building. It refers to *military carriages*, small carriages with one pole and a pair of horses on each side of the pole and large carriages with two shafts and an ox between them. The small carriages were used for hunting and war purposes. There were also "plain carriages" used as vehicles, drawn by ox or horse—This book then lays down the "regulations by which the people bred horses." Horses were of six kinds:—(1) thorough-bred, (2) charger, (3) horse of colour, (4) roadster, (5) hunter, and (6) common-bred. There were officers to look after the castration of horses, and officers to supervise the harnessing and unharnessing. There were other officers to manage the vicious horses. These observations are evidently about 1000 years older than those in Kautilya's chapter on *अश्वम* and about 2000 years earlier than those in the treatises of *अश्व* and *शुभ*.

2. Alexander's favourite charger *Bucephalus* died at *Jhalum* City of the *Hydaspes* in N. India after carrying him in all his campaigns. Alexander built at this place a city in memory of his charger after his battle with Porus. (Vide p. 110 of *Smith's Smaller Classical Dictionary*, Everyman's Library, London, 1913).

Among the early British at the time of the Roman conquest the *Iceni*¹ held a justly high reputation for the excellence of their horae and their horsemanship.

In mediaeval² times good horsemanship was highly esteemed as witness the *English Knights* who won their spurs by gallantry on the field of battle."

The foregoing data gives us a glimpse into the history of Indian interest in horses and the consequent importation of foreign horses into India from very early times. We have seen already that the *Amarakosa* refers to the *Pārasika* or Persian horses. We know also that Pulakēśin II of the Deccan sent an embassy to Persia in A. D. 625. Are we to suppose that the Persian horses³ began to be imported to India after A. D. 600?

1. *Iceni*—a powerful people in Britain dwelling in the modern counties of Suffolk and Norfolk. Their revolt from the Roman under their heroic queen Boadicea celebrated in history (*Ibid.*, p. 277).

2. Mongol horseman under Jenghiz Khān (died 1227 A. D.) were celebrated for their conquests— "A Mongol on a single pony will ride from Urga to Kalgan— by the shortest route 600 miles" (Vide p. 133 of *Unknown Mongolia* by Carruthers, Vol II). See article on *Mongol Army* in *JRAS*, 1943, p. 51.

3. According to *Bombay Gazetteer* [Vol. XIII (Thana) Part II, p. 463]. The Thana coast has taken a leading part in foreign commerce of Western India in the following periods of history :—

- (i) B. C. 2500 — B. C. 500 — There are signs of trade with *Egypt*, *Phoenicia* and *Babylon*.
- (ii) B. C. 250 — A. D. 250 — There are dealings with, perhaps settlements of, *Greeks* and *Romans*.
- (iii) A. D. 250 — 640 — There are *Persian* alliances and *Persian* settlements.
- (iv) A. D. 700 — 1200 — There are *Mussalman* trade relations and *Mussalman* settlements from *Arabia* and *Persia*.

During the reign of the great Netherwan (A. D. 531-578), the relations between *Western India* and *Persia* were extremely close. In the several lists of the articles of trade imported to India from outside before the period of the rule of the *Śilaharas* (A. D. 819-1760) I don't find any references to the import of horses. The *Gazetteer* observes (p. 431) :—

"The chief trade in *Animals* was towards the close of the period (1290), a great import of horses from the *Persian Gulf* and from *Arabia*. No ships came to Thana without horses and the Thana chief was so anxious to secure them that he agreed not to trouble the pirates so long as they let him have the horses as his share of the plunder. This great demand for horses seems to have risen from the scare among the *Hindu* rulers of the Deccan caused by the *Mussalman* cavalry. As many as 10,000 horses a year are said to have been imported." Speaking of *Mussalman* trade (p. 444) the *Gazetteer* observes :— "The constant demand for horses kept up a close connection between the Thana and *East Arabian* ports and there was a considerable trade with the *Zangibar* coast."

According to the *Bombay Gazetteer* the demand for Persian and Arabian horses arose from the scare created by Mussalmān cavalry. If this statement is true to history the horse-trade from Persia and Arabia must have been started some time after the conquest of Sind by the Arabs in A. D. 712. The Arabs had made several raids on the coasts of Western India, one of these in A. D. 637 from Bahrein and Oman in the Persian Gulf and plundered the Konkon coast near Thana (see Elliot and Dowson's *History*, I, pp. 415-416). In view of the above history of the trade in Persian and Arabian horses I am inclined to think that the treatises on horses by *अपह्न* and *नकुल* viz. the *अपह्नवर्णन* and *अपह्नवर्णन* are later than c. A. D. 800 as they refer to the पारसी (Persian) and साजिक (Arabian) horses among the best breeds of horses. These treatises were probably composed before A. D. 1300 as they show in a remarkable degree the necessity felt by the Hindu Kings¹ of the period 800-1300 A.D. of providing such manuals for the care of their cavalry with a view to combating the Mussalmān trained cavalry like that used by Shīsh-ud-din against Prithivīrāja of Ajmer in A. D. 1191.

If *अपह्न* or gram came to be used as food for horses in India say between A. D. 800 and 1300, the period during which the above mentioned treatises on horses were composed, we must investigate whether the use of *अपह्न* as food for horses has travelled to India along with the Persian and Arabian horses or otherwise. In connection with this problem it is necessary to locate references to *अपह्न* as food for horses in Persian, Arabic and Turkish sources prior to A. D. 800 but I must leave this task to scholars conversant with these sources. I have tried in this paper to record the history of *अपह्न* or gram as food for horses between c. A. D. 800 and 1870. I propose to deal with the question of the antiquity of *अपह्न* on the strength of Sanskrit and non-Sanskrit sources on a subsequent occasion and the present paper is only an off-shoot of the main study pertaining to the history of this important grain on which horses have been fed for more than 1000 years in India.

1. *अपह्न* is called "गन्धान्न" in the colophons of the different chapters of his *अपह्नवर्णन*.

26. Use of Caṇaka at an Āśvamedha in the
Rāmāyaṇa, of Caṇakāmla in Rasavidyā
(c. A. D. 1000 onwards) and Trade in Caṇaka
(about A. D. 1300)*

In my paper¹ on the History of Caṇaka (gram) I have recorded references to it from very early medical and other texts such as the *Bhelasamhita*, *Kāśyapasamhita*, *Caraka Saṃhita*, *Sūtrata Saṃhita*, *Nāṭyaśāstra*, *Gūhyasamājatantra*, *Paumacariya*, *Bṛhatsamhitā*, *Gāthasaptasatī*, *Pañcatantra*, *Thānāṅgasutta*, *Amarakośa*, etc. Among these references I did not record any reference to Caṇaka from the two Epics, the *Mahābhārata* and the *Rāmāyaṇa*, because I had no time to peruse these voluminous texts, having already spent many months in studying the history of Caṇaka from varied sources and recording the results of my study in a few papers² on this subject. Recently a learned friend, Mr. S.N. Vyas of Jodhpur (Rajaputana), who happened to read my paper on Caṇaka in the *Annals* (B.O.R. Institute) directed my attention to the following reference to Caṇaka in the *Rāmāyaṇa* (*Uttarakāṇḍa*, chap. 91, verse 20, p. 231, of T. R. Krishnacharya's edition, Bombay, 1913) :—

(Rāma asks Lakṣmaṇa to carry out preparations for the Āśvamedha sacrifice in the Naimiṣa forest on the bank of river Gomati).

“ शतं वाहसृक्षाणां तण्डुलानां वपुष्पलाम् ।
अयुतं तिलमुरगानां प्रयात्वमेवहावत ॥ १६ ॥
चणकानां कुलत्थानां माषाणां लवणस्य च ।
अतोमुरूपं स्नेहं च गन्धं सद्भिस्तमेव च ॥ २० ॥ ”

In my paper on Caṇaka published in the *Annals* I have pointed out that the *Agnipurāṇa* (A. D. 800-900) prohibits the use of Caṇaka in religious fasts and further Vijñāneśvara (A. D. 1070-1100) prohibits its use at a *Śrāddha*. This prohibition may be contrasted with the recommendation of the *Rāmāyaṇa* that Caṇaka should be used along with *tila*, *tandula* and *mudga* as also *Kulatha*, *māṣa* at an *āśvamedha* sacrifice. If Southern

* Adyar Library Bulletin, Vol. XII, part I, pp. 14-23.

1. vide pp. 56-52 of *Annals* (B. O. R. Institute), Vol. XXVII (1946).

2. vide pp. 89-105 of *Annals*, Vol. XXVI (1946); *Acharya Dhruva Smarak Grantha*, pp. 247-255 (of English Volume) and *Pratyakṣaṇī* (Calcutta), Jan.-April, 1946, pp. 33-39.

Europe is the native habitat of *Canaka*, and if from this habitat, i.e. from Greece and Italy, it migrated to India possibly during the Greek occupation of Panjab (B. C. 190 — c. A. D. 20) as suggested by me, it is natural to find it mentioned with favour in the *Uttarakāṇḍa* of the *Ramāyaṇa* which must have been composed at a time when *Canaka* was popular among the sages of India as an edible grain in spite of its foreign origin. As all early medical texts prescribe the use of *Canaka* on account of its dietetic value we have to suppose that it became the friend of the common people within a short time from its introduction by the foreign settlers in Indian agriculture. At a later stage say after A. D. 300 the *Canaka* came to be produced in larger quantities and was consequently included among the articles to be used for the regimen of horse. About A. D. 1000 *Canaka* ousted out *Yava* from the regimen of horses though at this time the *Dharmasāstras*, which had more respect for *Yava* on account of its Vedic antiquity, prohibited *Canaka* in important religious ceremonies and ritual. In spite of this prohibition *Canaka* became more and more popular and demanded respect, so that by about A. D. 1450 we find it among the grains to be offered at a *Śrāddha* by pilgrims as prescribed in the *Gaṅgāvākyavālī*. This in short is the story of *Canaka* as reconstructed by me on the strength of ancient and mediaeval Sanskrit and non-Sanskrit texts.

In the numerous printed editions of the *Ramāyaṇa* the verse “*कनकां दुग्धमाशु*” etc. which I have quoted from Krishnacharya's edition of 1913, has been uniformly retained. I would, however, request our *Ramāyaṇa* scholars to see if this verse is dropped from any MSS of the *Uttarakāṇḍa*, which might be accessible to them.

Apart from the dietetic value of *Canaka* vouched by early medical texts we have in later texts references to the medical use of *Canaka* and its products. I may note here a few of these references :—

(1) In the *Canakavidhi* (section on *Canaka*) found in the MS of *Aṣṭāyurveda* of Vagbhata, son of Vikrama (B. O. R. Institute MS No. 581 of 1899-1915, folio 54) we find the following description of *Canaka* plant at its flowering-time :—

“*पुष्पे लवणतिक्ताम्लरसो दोषायकर्षणः*”

At present we use the acid procured from *Canaka* as a house-hold remedy. It is called *कां* (*amb*) in Marathi and is gathered from the *Canaka* fields at the flowering time. The above line refers to the three *rasas* or flavours developed in the *Canaka* plant viz *लवण* (salty), *तिक्त* (bitter or pungent) and *अम्ल* (sour or acid), at the flowering time. I cannot say how far this

statement is correct but I can vouch for the अम्ल-रस or the acid taste, which was recognized more than a thousand years ago by Indians during the history of Caṇaka in India for about 2000 years.

The acid gathered from the Caṇaka plants was called चणकाम्ल¹ (= जाय in Marathi) as will be seen from the following references :—

In the *Rasaratnākara* (*Vādikhaṇḍa* ed. by J. K. Shastri, Gondal, 1940) a work on alchemy assigned to the 13th Century A. D., we get the following references to चणकाम्ल etc. :—

Page 8 —(Upadeśa II) अम्लवर्णं

—“चाङ्गरो चणुकाम्लं तु मातुलुङ्गाम्लवेतकम् ॥ ७ ॥

चिचानारंगजायीरमम्लवर्णं इति स्मृतः ।”

Page 10 —(विष्णोषधिगण)

—“शदरी लज्जरी लाक्षा चणुा वर्तुलपत्रका ॥”

Page 62 —(Upadeśa VII) तारवेच

—“गन्धकं वृत्तचूर्णं तु चणुकाम्लेन भावयेत् ॥”

Page 79 —(पारदं अन्नजारणम्)

—“धूर्वांश्च षोडशांश्च च मूषायां चणुकद्रवैः ॥ ४७ ॥

वास्तुकाभाण्डमथे तु चूर्णां मृदमिना पचेत् ।

अन्नके चणुकद्राव जीर्णे जीर्णे विधेयुनः ॥ ४८ ॥

इत्येष जारयेतुल्यं पारदे गगनं कर्मात् ।”

Page 103 —“मर्दयेत्ताम्रखले तु चणुकाम्लैर्दिनावधि ।

नवसारेभ्यःपात्रं लेपयेत्तत्र निविजेत् ॥

पारदं साधितंसाधं चणुकाम्लं च कौञ्जिकम् ।”

Page 116 —“धान्याम्लैः केषयेत्तत्वं तद्द्रवैर्मर्दयेत्प्रथम्”

Page 122 —“मर्दयेच्चणुकाम्लैश्च सर्वमेतदिनावधि ॥ ११ ॥”

Page 125 —“मर्दयेच्चणुकाम्लेन यामाद् गन्धे द्रवयलम् ॥ ५० ॥”

Page 146 —“क्षारवर्णं रामठं च चणुकाम्लाग्लतेतसम् ॥ ६१ ॥”

1. In the *Śabdakośa* (*Śāstrīya* (Calcutta, Vol. II), p. 417, we get the following entries about चणकाम्लः—

चणुकाम्लकं (चणुकजातमम्लम् । ततः स्वार्थे क्त्वं) चणुकलवणम् तस्य गुणाः । अत्यम्लत्वम् । दीपनत्वम् । दन्तार्धशूलम् । लवणानुसृज्यम् । रुच्यत्वम् । रक्षाजीर्णविबन्धनाशित्वञ्च । इति भावप्रकाराख्य (c. A. D. 1550) पूर्वस्मिन् प्रथमे भागे ॥

चणुकाम्लवाः (चणुकाम्लस्य चणुकलवणस्य वारि जलम् ।) क्षेपस्पर्शलवणकच-
द्वयप्रशिरवारि । इति रक्षावली.

In the *Rasarnava* (c. 12th Century A. D.) edited by Dr. P. C. Ray (*Bib. Indica*, Calcutta, 1910) we get a few references to *चणकाम्ल* as follows:—

Page 64 —“अम्लवेलवजनीर-सुहासचणकाम्लकम् ।

नारङ्गं तिलिपीरु च वाङ्गेर्यम्लशोचयाः ॥ ३१ ॥”

Page 90 —“आरुच्यं रामठं च चणकाम्लान्वेतवम्”

Page 161 —“रसेन सह देवेष्टि चणकाम्लेन काष्ठिकम् ।”

Dr. P. C. Ray explains the term *चणकाम्ल* in his *Glossary* (pp. 26-27) at the end of the *Rasarnava* edition as follows:—

“*चणकाम्लक* (*Acid of Cicer arietinum*, Linn. Beng. *Guichh Chholā*, Hindi *Chanakloni*).

In the *Rasaratnasamuccaya* of Vāgbhaṭa, who is assigned by Sir P. C. Ray “between the 13th and 14th Centuries A. D.” (p. li. of Intro. to *History of Hindu Chemistry*, Vol. I, Calcutta, 1902) we find the following references to *चणकाम्ल* in Chapter X (page 40 of extracts at the end of *Hist. of Hindu Chemistry*, Vol. I):—

“वाङ्गेरी चणकाम्लं च अम्लिकं कोलदाडिमम् ।

अम्लहा तिलिपीरु च नारङ्गं रसासिद्धा ।

करवन्दं तथा वान्मवृक्षवर्गः प्रकीर्तितः ॥”

From the references to the “*Caṇakāmla*” (acid of *Cicer arietinum*) in the *Aṣṭāyurveda* of Vāgbhaṭa, son of Vikrama, the *Rasarnava* and the *Rasaratnasamuccaya* recorded above it would be reasonable to suppose that this acid was a recognized product from the *Caṇaka* plant in India say from A. D. 900 onwards. It is now necessary to trace references to *Caṇakāmla* prior to A. D. 900 in datable texts.

In another work on alchemy called the *Rasaprakāśasudhākara* (13th Cent. A. D.) ed. by Rājavidya. J. K. Shāstri, Gondal, 1940 we get a reference to the *चणकाम्ल* (acid from *Cicer* plant) as follows:—

Page 9—“व्यासं हि खलुकेण क्षारेण चणकस्य हि ॥”

(Here *चणकवार* is possibly identical with *चणकाम्ल*)

The foregoing references to *चणकाम्ल* in treatises from 13th Century onwards warrant an inference that *Caṇaka* was grown in the fields in large quantity to enable the alchemists to gather the *चणकाम्ल* in sufficient quantity for use in their experiments in *rasavidya*. This inference is corroborated by the following anecdote about a trader in *Caṇaka* narrated by Merutunga in his work *Prabandhacintāmaṇi* of A. D. 1305:—

Pages 106-107 (Tawney's Eng. Trans., Calcutta 1901):—

"Then one night the King¹ was looking at a play in the temple of *Karṇameru*, when a certain ordinary trader, a *seller of gram* placed his hand on his shoulder. The King's mind was astonished at his sportive familiarity but he again and again accepted with his satisfaction the *betel* and *camphor* which the trader offered him, and when the play was dismissed, he found out by means of his attendants the house of the trader and other particulars in the fullest detail, and then, returning to his palace he went to sleep. In the morning the King, after he had performed the duties incumbent on him at the beginning of the day, adorned the assembly pavilion with his presence, giving general audience to the people and summoned the *trader that sold gram* and said to him, "My neck is aching from the weight of the hand that you rested on it last night". But he with prompt readiness of invention, replied, "If your Majesty's shoulder does not feel pain from bearing the weight of the whole earth, even to the urge of ocean, what pain can it feel from the weight of me, a mere life-less man of straw, that subsists by trade? The King was delighted by this speech of his, which put matters in their true light, and gave him a present. Here ends the *Story of the Seller of Gram*."²

The above story of the seller of *Caṇaka* is recorded in a work of A. D. 1305 but it relates to the reign of King Jayasimha Siddharāja Sojānki of Gujarat (A. D. 1093-1142). If it really relates to this reign we can infer from it easily that the production of *Caṇaka* in Gujarat had grown to such an extent say about A.D. 1100 that there were special traders in this commodity with respectable status like the one in *Merutuṅga's* story represented as having royal contact.

1. Jayasimha Siddharāja (Gujarat) — A. D. 1093-1142.

2. The text of this story as found in the edition of the *Prabandhaśāntamāṇi*, ed. by Rāmācandra Śāstri, Bombay, 1888, p. 175 reads as follows:—

Sarga III — "अथान्यदा निग्रि कथमेकासादे उपतिर्नाटं विलोकयन् वेनापि बह्वृक्-
विक्रयकारिणा बणिगमात्रेण स्मरन्नेन स्मरन्वस्तदस्तेन तल्लिलापितेन विरपिपाद्यमानसः स
भूयो भूयस्तद्वेयमानं सकर्षुस्वोटं परितोषते यद्वन् नाटकविसर्जनावसरेनुचरैस्तद्गोदादि सम्पन्नवगम्य
सौम्यासाय शुष्माप । प्रत्युपै भूपः कृतप्रामातृककृत्यः सर्वानवशेरत्संकृतसमाम्पण्डपस्तं बह्वृक्विक्रय-
कारिणं विरचिनमाकार्यं निग्रि स्मरन्वस्तदस्तेनोरेण ग्रीवा बाधते इत्यभिहिते तत्कालोत्पद्यति-
विज्ञापयामास । देव आसद्युद्धान्तभूमाये स्मर्याधिरुदे यदि स्वामिनः न बाधते स्मरन्वस्तदा तुभ्यमावस्य
निर्जीवस्य मम पण्णायजीवस्य भारेण स्वामिनः का स्मरन्वाधेति तदीयौचित्यविज्ञानेन प्रमोदावान्पः
पारितोषिकं ददौ ॥

इति बह्वृक्विक्रयविषयिकः प्रबन्धः ॥¹

In the *Aśvavurveda* of Vāgbhaṭa, son of Vikrama (MS No. 581 of 1899-1915, folio 54) the author states that in the southern quarter below the Vindhya mountains *Canaka* was used prominently as horse-food ("विन्धिपार्श्वे चणकः प्रसृतो" and "चणको दक्षिणे विष्णुपुरेण यथाहितः"). This statement is in harmony with the abundant trade in *Canaka* (about A.D. 1100), which appears to have been carried on in Gujarat during the reign of King Siddharṇja. In my paper on the *Canakavidhi* mentioned in the above *Aśvavurveda* I have suggested that this treatise appears to have been composed sometime before A. D. 1000. This suggestion gets some corroboration from the story of the seller in *Canaka* connected with the reign of King Siddharṇja, during which the production of *Canaka* below the Vindhya range was growing apace, resulting in a well-established trade in this grain with special dealers. Evidently this grain of foreign origin had made its mark in the agricultural economics of India by A. D. 1000, if not some centuries earlier.

Aparārka in his commentary (c. A. D. 1100) on the *Yājñavalkyasmṛiti* [ed. Anandasrama, Sans. Series, Poona, 1903. Vol. I. pp. 322-353 (भाष्यारण्यस्य) द्वापदधरण] quotes an extract from the *Matsyapurāṇa*. In this extract I find the following verses giving चण (Cicer) a respectable place among the 18 *dhānyas* prescribed for sacred gifts to Brahmins:—

“कीदृशवस्त्रसंयुक्तं तिलद्रोणोपनिषत् ।

तथाऽष्टादशधान्यानि समन्तात्परिकल्पयेत् ॥

श्यामाकथान्वयव (v.l. तिल) मुद्रतिलाद्युमाव-

गोधूमकोद्वकुलपसतीनशिखैः ।

अष्टादशं चणकलायमोष्टराज-

मापप्रियङ्गुसहितं च मयूरमाहुः ॥”

The statement of *Aśvavurveda* of Vāgbhaṭa, son of Vikrama, that *Canaka* was current to the south of the Vindhya mountain (चणको दक्षिणे विष्णुपुरे) gets confirmation from the recent discovery in the Kolhapur excavations of charred *gram* seeds at depths attributed to the *Sātavāhana* period (B. C. 100—200 A. D.) by Dr. M. G. Dikshit,¹ Curator, Deccan

1. Dr. Dikshit reports in his letter to me, dated 30th September 1947 as follows:—

“The following charred objects have been recovered from various levels in the *Brahmapuri* excavations, Kolhapur, 1945 :

- (i) Charred *Gram*—No. 796. Sq. IV—Stratum (4) Bahamani Period.
- (ii) Charred tamarind seed—No. 2451. Ex. II—Stratum (8) *Sātavāhana* Period.
- (iii) Charred *Gram*—No. 2984. Sq. I—Stratum (8) *Sātavāhana* Period.
- (iv) Charred *Gram*—No. 2185. Sq. I—Stratum (8) *Sātavāhana* Period.

College Research Institute, Poona. If the dating of the levels at which charred *gram seeds* were found at Brahmapuri (Kolhapur) is correct we may be justified in presuming that *Canaka* was either grown in India between B. C. 100 and A. D. 200) or was imported into India from outside as an article of trade either by the Greeks during the Greek occupation of the Panjab between B. C. 190 and A. D. 20) or by the Romans whose trade with India in the 1st Century A. D. is now amply proved by the discoveries at *Arikamedu* (near Pondicherry) which was an Indo-Roman trading station on the East coast of India (*vide* article on *Arikamedu* in *Ancient India*, July 1946, pp. 17-124).

(v) Charred *Ragi*—Es. II—(6) Depth 18 ft.—*S'atapathana* Period,

(vi) Charred *Rice* occurred in a 6 inch layer above a pavement attributable to the *S'atapathana* Period (100 B. C.—200 A. D.)

I have to thank Dr. Dikshit for the above information which he sent to me very promptly.

27. Studies in the History of Indian Plants — The use of *Capaka* (gram) as horse-food vouched by five Sanskrit treatises on the *Āśvaśāstra**

An accurate history of Indian plants of medical and nutritive value can be written only when the history of each plant has been reconstructed on the strength of Indian and foreign sources. I have accordingly been engaged during the last ten years in gathering materials for such a history and have even published some papers¹ on it. I have recently sent for publication two papers² on the history of *Capaka* (gram) as horse-food. The evidence recorded in these papers shows conclusively that *Capaka* as horse-food has a clear history of more than 1000 years as will be seen from the following table which shows at a glance the evidence gathered by me from published and unpublished Sanskrit and non-Sanskrit sources:—

* *Pratyakṣa*, January-April 1946, pp. 35-39.

1. These papers are as follows:—

- (1) History of the Fig (*Ficus Carica*)—from B. C. 1600 to A. D. 1800 (*New Indian Antiquary*), Vol. IV (1941.42), pp. 125-136.
- (2) Antiquity of Jawār (*Holcus Sorghum*) from B. C. 2200 to A. D. 1800 (*B. C. Low Volume*, Part I, pp. 142-158).
- (3) A Contemporary MS of the Bhojanakutūbhalā of Raghunātha (Between A. D. 1650 and 1685)—Reference to chillies (मिर्च) in this MS and references to अजीर, पोथी, अन्नस, लीलावत in the वाचस्पत्य of Saint Rāmadāsa (A. D. 1608-1682)—*Bombay University Journal*, Sept. 1934, pp. 40-45.
- (4) Mahārati Variety of Rice in Magadha, *N. I. A.*, March 1944, pp. 265-271.

2. These papers are:—

- (1) History of *Capaka* (gram) as food for horse with some Notes on the History of the Import of Foreign Horses to India (*Annals-B. O. R. Institute*, Vol. XXVI, pp. 89-105).
- (2) Role of Yava and *Capaka* in the Regimen of Indian Horses as disclosed in the *Arvāyurveda* of Vāghaṭa, son of Vikrama (*Dr. A. B. Dhruva Commemoration Volume*),

Chronology	Source	Reference to Canaka as horse-food.
Before A. D. 1000.	<i>Asvayurveda</i> of Vagbhata, son of Vikrama.	Does not mention पारसीक and गार्जिक horses —Praises यव as food for horses from Himalayas upto विन्ध्य mountain and चणक as important food for horses to the south of the विन्ध्य mountain.
Between 800 and 900 A. D.	<i>Agnipurāṇa</i> .	mentions चणक as food for horses along with यव
Before A. D. 1000.	<i>Aśvaprakāśa</i> of Nakula.	mentions गार्जिक (Arabian) and खुरसान (Khorasan) Horses as the best. mentions यव as the best food for horses and चणक as the second best food for horses (यवमात्रे चणकः परं चाप्यम्).
Before A. D. 1300.	<i>Aśvavaidyaka</i> of Jayadatta	mentions गार्जिक (Arabian) and पारसीक (Persian) horses as the best. mentions चणक as food for horses along with यव.
c. A. D. 1450	<i>Rajaniḥṣṭu</i> of Narahari.	mentions चणक as "गार्जिक" or food of horses
A. D. 1513	<i>Albuquerque, Cartas</i>	<i>grāos</i> (=gram) as food for horses (exported from Persian gulf).
A. D. 1554	<i>Castanheda</i>	<i>grāos</i> (=gram) food for horses of Vijayanagar.
c. A. D. 1610	<i>Pyrard de Laval</i>	<i>grain</i> (=gram) like lentils.
A. D. 1702	<i>Wheeler</i>	<i>gram</i>
A. D. 1776	<i>Halhed's code</i>	<i>gram</i>
A. D. 1789	<i>Munro's Narrative</i>	<i>gram</i> (used instead of oats)
A. D. 1793	<i>Dirom's Narrative</i>	<i>gram</i> (not given to bullocks in the Carnatic).
A. D. 1804	<i>Wellington</i>	<i>gram</i> worth 50,000 pagodas for four regiments.
A. D. 1865	<i>Palgrave's Arabia</i>	<i>gram</i>

References in the above list from A. D. 1513 onwards are taken by me from *Hobson-Jobson* by Yule and Burnell (London, 1903, p. 393—article on GRAM). References earlier than A. D. 1513 were discovered by me during the course of my study. Since my discovery of the evidence regarding घण्ट as food for horses from Sanskrit works on Horses I have come across the following additional evidence from another treatise on Horses which I traced in the Government MSS Library at the B. O. R. Institute, Poona. This treatise is called सारसमुच्चय and is a copy made in 1866-68 (No. 119 of 1866-68—Bühler's Collection). At the beginning of the MS the copyist has copied the 66th chapter of 5 verses from the बृहत्संहिता of ब्रह्मिहिर (c. A. D. 500) called the तुरंगलक्षणाध्याय. The work सारसमुच्चय follows this chapter.

It begins as follows :—

“भीमशैश्याय नमः ॥ भीमहालक्ष्मीविमलेश्वराभ्यां नमः
येन विज्ञानवता हिमालयतटच्छायायु विकीर्तितं
यः स्नातो हयमेघवातशिशिरैर्मगजलेः पावनैः ।
रेमे यस्तुरंगयुपजनितैर्नानाविधै हृषितैः ।
पायाद्दः स तुरंगयोगतनयः भीमशालिहोत्रो मुनिः ॥१॥
भीमशालिहोत्रं हययोगपुत्रं महामुनीन् प्रणिपत्य तस्मात् ।
भीमरशःपालमुतं चिकित्साविशारदं विश्वस्यमात्मतातम् ॥२॥
भीमशालिहोत्रादिमुनि-प्रणीत-शास्त्रोद्बोधेः संग्रहं विधाय ।
विचार्य वलुन्ति च कल्हणेन विरच्यते सारसमुच्चयोऽयम् ॥३॥
प्राबसारात्रविज्ञान-विमृदनुद्धिः संक्षेपविज्ञानपरो भियक् यः ।
अग्रमनूते सारसमुच्चयेऽसौ बुद्धिं करिष्यत्युचो बुधोऽपि ॥४॥”

In the several colophons of chapters found in the MS this work सारसमुच्चय on बयवशास्त्र is described as “विहङ्गायनकविहङ्गहृत” i.e. composed by *Kalhana*, son of *Bilhana*. The genealogy of our author as recorded in verse 2 above is as follows :—

यशःपाल, son विहङ्ग, son कल्हण (author of सारसमुच्चय).

The date of this कल्हण has not been determined so far as I know but he appears to be different from कल्हण,¹ the author of the celebrated *Rajatarangini*, who was the son of चणक. This चणक was minister to King *Harsa* of Kashmir (A. D. 1089-1101). Our author's father विहङ्ग who is called विहङ्गायनसारद (verse 2) is not identical with विहङ्ग² (c. A. D.

1. See *चणकगीतिकावली* by Chitrav' Shastri, Poona, 1937, p. 507.

2. Ibid p. 567.

1090-1100), the author of the *विक्रमाङ्कदेवचरित*, who was son of *म्लेचक* and not of *वसःपाक*. Whatever be the date of our *Kaṭhaṇa* he appears to have been a Kashmirian physician like his father *Bilhana* styled as *चिकित्साविस्तार* or expert in medicine. With these remarks about the *सारसमुच्चय* and its author, I record below the evidence regarding the use of *चणक* as food for horses given by *कवहण* in his work under reference :—

On folios 10 and 11 of MS No. 119 of 1866-68 (*सारसमुच्चय*) the author deals with the food to be given to horses and observes :—

—“श्रेष्ठः सुजातश्चकोऽतिनीलः पुष्टैः फलैः संचित एष देयः ।

योगो न युक्तोमृतवययाऽसौ रसादिधातुंस्तनुते च मान्यः ॥५॥

एकांतरेणास्य सुरा प्रदद्यात्सुखीकृत्यार्थवर्हिष्युकम् ।

सुश्रुत्तृणकंधान्मतिमान्प्रभाते दद्यादसंकपालवशेन युक्तम् ॥६॥

न केवलास्तौ कुर्वते मिथीलं सत्तारतैलं सततं प्रदद्यात् ।

स्त्रियो न रत्नो न च कीटयुक्तो देवो हयानां चयकश्च नित्यम् ॥७॥

न खादनैर्मोक्षरत्नं भोजनं न स्नेहपासादिभिरेव सेवितैः ।

तथा न पुष्टिर्भवतीह याजिनो यथा हि सत्यैश्चिता प्रनायते ॥८॥

*हिमालयाद्रित्यधुवस्तु यावद् यवः प्रधाना कथिता पुनःश्रेः ।

दिग्दक्षिणायां चयकः प्रशस्तो मकुष्टकः पश्चिममभिभागे ॥९॥”

—“एषां चूर्णमिदं प्लव्यमितं कायान्निसंदीपनं

वाक्यया चयकेन सैधवयुतं शूलार्तिनिर्नाशनम् ।

गोमूत्रेण युतं कपट्टमिह रं विपायकान्छादनं

प्रसन्नंश्चययु सरकमदतं कङ्कहरं सर्विषा ॥”

Verse 9 in the above extract is found in the *अष्टाध्याय* of *Vagbhata* without any serious variations. As *Kaṭhaṇa*'s *सारसमुच्चय* has summarised and digested some earlier sources on the treatment of horses (as its name indicates) it is possible to suppose that *Kaṭhaṇa* may have borrowed this verse from *Vagbhata*'s work. Even though the possibility of a common

*In the *अष्टाध्याय* of *अष्टाध्याय* of *शाम्भट*, son of *विष्णु* (B. O. R. Institute MS No. 581 of 1899-1915, folio 55-56) this verse is found at the commencement of the *चयकविधि* section. It reads as follows :—

“हिमालयाद्रित्यधुवस्तु यावद् यवः प्रधाना कथिता पुनःश्रेः ।

दिग्दक्षिणायां चयकः प्रशस्तो मकुष्टकः पश्चिममभिभागे ।”

There is possibility of *कवहण* borrowing this verse from *शाम्भट*'s *अष्टाध्याय* as *कवहण* has summarised some earlier sources. In his *अष्टाध्याय*, *शाम्भट* again repeats the substance of the above verse as follows :—

“चयको दक्षिणे विन्ध्याद् उत्तरेण कवाहितः”

source from which both Kalhaṇa and Vagbhata may have borrowed cannot be ruled out we may take it as certain that Kalhaṇa lived at a time, when *gana* had assumed an important role in the regimen of horses in India so as to wrest out from its senior *gana* much of the latter's glory as horse-food par excellence.

It will be seen from the evidence recorded by me so far that the use of *gana* as horse-food has been prescribed by (1) the *Manu* (section on *gana*), (2) the *Manu* of Vagbhata, son of Vikrama, (3) the *Samudra* (on *gana*) by *Krishna*, son of *Vishnu*, (4) the *Manu* of Nakula and lastly by (5) the *Manu* of Jayadatta. All of these texts are treatises on *gana* composed between c. A. D. 700 and 1300, a period when there appears to have been a revival of princely interest in horse-lore consequent upon the effect of the superior Muslim cavalry against which Indian princes had to fight for their very existence. If this suggestion is accepted, it is easy for us to understand why these manuals on the care and treatment of horses came to be written. But for these texts, some of which definitely state that they have drawn their contents from the earlier texts of *Manu* and others it would have been difficult for us to have a peep into the ancient Indian horse-lore, which had become almost misty but whose development is fully attested by Kautilya's chapter on *gana* in his *Arthashastra*. Kingship depended on cavalry in ancient and mediaeval India as observed by Vagbhata in the following lines in his *Manu*—

“अथा भवन्ति मुचि यस्य हि तस्य साम्राट्
आस्ते कर्मण्यिनी द्रवितेव दृष्टवी ”

Though horses were the main stay of the old empires in the history of the human race, they have been now replaced by army tanks and in 1945 the *Atom Bomb* reigned supreme in human war-fare. When the scientists conspire Indra trembles in his war-chariot.

28. Studies in the History of Indian Plants — The Role of Yava and Caṇaka (gram) in Regimen of Indian Horses as disclosed in the *Aśvayurveda* of Vagbhata, son of Vikrama*

In my paper¹ on '*Caṇaka (gram) as food for horses*' I tried to prove the history of *Caṇaka* as food for horses in India for about 1000 years. The earliest reference to *Caṇaka* as horse-food was traced by me in the section dealing with *Aśvacikitsita* forming part of the present *Agnipurāṇa* (c. 9th Century A.D.). To corroborate this reference there are references to *Caṇaka* as horse-food in Jayadatta's *Aśvavaidyaka* and Nakula's *Aśvacikitsita*. In fact Nakula recommends *Caṇaka* as second best food for horses, though he praises *Yava* as the best horse-food. Even in the *Agnipurāṇa*, *Caṇaka* appears as an alternative to *Yava*. Since my sending the above paper for publication, I have traced some interesting evidence about *Caṇaka* as horse-food in a MS² of a work dealing with horses and their treatment. The chronology of this work has not been determined. The MS of this work in the Government MSS Library at the B.O.R. Institute, Poona, is dated Samvat 1701 = A.D. 1645.

The author of this work was बामट, son of विक्रम, and the name of the work is बघावुर्वेद. In the Colophons of different chapters of the work, the author's name is given as बाहुड which is identical with the name बामट as recorded by the author in the following verse on folio 4 of the MS :—

“इदानीमस्य शास्त्रस्य क्रमो विक्रमस्तुना ।
वोषार्थं वैद्यपुत्राणां बामटेनाभिधीयते ॥ ३ ॥”

* *Acharya Dhruva Smāraka Grantha*, pp. 247 ff

1. *Vile Annals* (B.O.R. Institute, Poona), Vol. XXVI.

2. MS No. 581 of 1899-1915, folios 196, the Colophon on folio 196 reads :—

“इति श्रीविष्णुसामन्ताह्वयिचितेऽष्टावुर्वेदे किशोरचिकित्सा etc. ॥ संवत् १७०१
भाद्रपद शुद्धि ११ सोमे शिस्तितमिदं बुवेहरिकंडमुत्तदुवेलाड (१) काभुगदुवेकमलाकांततपुचदुवेमुष्क-
देकेन राखमहलमये स्व गठनार्थं परोपकारार्थं च ॥ etc.”

In the first 9 verses, the author tells us that he has based his treatise on the earlier works of शक्तिदीप and other sages (“सर्वस्वपुत्रमुद्रितसमशास्त्रिहोत्रशास्त्राण्यहो विप्रराशि विहितस्तस्मात् ॥ ५ ॥”)

There are several writers of the name वासुदेव in Sanskrit literature. Even in the field of Medicine, we have the following name-sakes¹ of our वासुदेव :—

- (1) वासुदेव I (author of *वृद्धाक्षरसंग्रह*) c. A.D. 625.
- (2) " II (author of *वृद्धाक्षरसंग्रह*) 8th or 9th century A.D.
- (3) " (author of *रत्नसंग्रहसमुच्चय*) 13th century A.D.

The relation of our वासुदेव, the son of विश्वामित्र, to his name-sakes recorded above remains to be investigated. The relation of his *वृद्धाक्षरसंग्रह* with the treatises on horses by Jayadatta and Nakula needs also to be proved on definite evidence. For the present, I record below the evidence about the use of *वृद्धाक्षर* and *वृद्धाक्षरसंग्रह* as food for horses described in detail by our author in the following extracts of the B.O.R. Institute MS before me :—

(1) *वृद्धाक्षरसंग्रह* (folio 54)

तृणानामप्य बाह्यानां महातिकृष्टसर्पिषा ।
 हेमवैषम्यतीति स्फुरिताय हरिता यवाः ॥ ७३ ॥
 कुर्वन्तारोच्यमते बलज्वजननावर्गुलावयसंपत्
 क्तोत्साह्यमावधमृतिगुह्यतार्वेन्द्रियाणां मृदुत्वं ।
 कनाना दीर्घमायुः समुचितसमये स्वामिमिश्रोपनीताः
 संजायन्ते हरीश्वामि हरितयवाः सेव्यमाना यथावत् ॥ ७८ ॥
 अन्नप्रपये यनावाला (यनावाला) युवानो ग्रंथिसंयुताः ।
 उत्पन्नकुमुदाः पञ्चाभापते गर्भसंयुताः ॥ ७९ ॥
 क्षीरमाभिर्भवं संतस्ततो व्यक्तवशा यवाः ।
 पक्वस्ते तदनुशोकाः सतपेति मनीषिभिः ॥ ८० ॥
 रत्नैः पद्मिभ्योऽपि स्युः कालजा हरिता यवाः ।
 अथाप्युद्धा रुद्धा वाताः प्रहतिवातुताः ॥ ८१ ॥
 वचोभेदकृतोत्पन्नं मूषलाः कोष्ठशुद्धये ।
 दृष्ट्वायुवत् मानवाः (?) पुष्टिं पुष्पति पुष्पिताः ॥ ८२ ॥

1. Vide my English Introduction to the *Ajñānashraddhā*, ed. by Hari Shastri Paradkar, N.S. Press, Bombay, 1939, p. 4.

2. *वृद्धाक्षर* as man's food from the *Higuda* onwards is celebrated in Sanskrit literature. In Kaṇḍiśya's *Arthashastra* it is prescribed for horse regimen along with other ingredients. In later treatises on horses such as *Śārada*'s *Arthashastra*, *Yajñ*'s *Arthashastra*, the *Arthashastra* ascribed to *Yajñ* etc., it is much praised as food for Horses. Even in the *Harivamśa* of *Valmiki*, it is constantly prescribed as food for elephants. It found in *Yajñ*, a superior rival sometime before A.D. 1000. Even *Yajñ* prescribes *वृद्धाक्षर* for elephants in the following verse :

"*वृद्धाक्षरं वृद्धाक्षरं वृद्धाक्षरं वृद्धाक्षरं* ।

वृद्धाक्षरं वृद्धाक्षरं वृद्धाक्षरं वृद्धाक्षरं ॥ ८६ ॥" *Yajñ*, 646 of *Harivamśa* (A.S.B. Poona, 1894).

विपाके मधुरा बाराः कडुका गर्भितास्ततः ।
 जनयति ततो मांसं श्लेष्मला मूत्रकारिणः ॥ ८१ ॥
 सजीराएव रसोपेता माधुर्यगुणसंयुताः ।
 पित्तक्षोपं निहरणान्नोपते पातुवर्जनाः ॥ ८४ ॥
 पक्का युका रसैः पृथुभिः क्षोष्ठदाहहृता मलाः ।
 मेदोमज्जारिपमांशानि स्थिरीकुर्वन्ति सेविताः ॥ ८५ ॥
 तप्तके प्रयमेत्यर्थे विरेकः कफसेचन ।
 शार्दूलवति पानेन वर्जयेदिति तद्बुधः ॥ ८६ ॥
 सोढुं न पार्यते तृष्णा ग्रहादूर्ध्वं विधीयते ।
 एकाहाश्च पथःपानं यातस्तकुसुमा यवाः ॥ ८७ ॥
 अन्यत्र सत्यमश्वानां तथा ह्ये रसायनं ।
 काले संसेव्यमाना हि यथा स्युः कृमयो यवाः ॥ ८८ ॥
 विरेके रक्तमांसादिपेदोमज्जादिधातवः ।
 यवैर्हृदि प्राच्यते कृमादावृंसतकान् ॥ ८९ ॥
 सतयः सतकान्तकमेवैव चरति ये ।
 यवानां दुर्लभं तत्र ते परं बलवत्तराः ॥ ९० ॥
 यवैर्यां बलसंपत्तिः सतीनामिह जायते ।
 न तां वर्णयितुं शका भिषगः शास्त्रपारगाः ॥ ९१ ॥
 इति यवविधिः¹

हिमालयादिप्यमुवस्तु यावत्
 यवाः प्रधाना कथिता मुनीन्द्रैः ।
 दिग्वाक्कुणायां चर्यकः प्रशस्तो
 मुकुष्टकः पश्चिमम् भूमिगोः ॥ ९२ ॥²

1. Cf. the following remarks of Nakula in his उपविधिचिन्ता (Bib. Ind. 1867) about yav as food for horses :—

P. 40—“देवतानां यवा विष्णुर्हृद्वा वेदयितुं शतः । नदीनां च यवा तथा तथा देवा यवा ह्येव”

P. 42—“परीक्षादी यवा हेतुः स्नेहस्य च प्रतिष्ठिता । हृत्पथस्य यवाश्च परीक्ष यवकाले ॥”

P. 40—“कृताः स्तुर्वर्गमोच्येन सन्दीप्तस्यकुल नरैः । नीतोक्तसूत्राः सर्वे जगिह्वरतं यवा ॥”

There is a MS of a work called जगिह्वर (ascribed to श्रीधर in the Colophon) No. 16 of 1868-69 in the Government MS Library at the B.O.R. Institute, Poona (dated Saka-vat 1864

= A.D. 1808) in which I find the following verses :—

Polio 6—“यवोत्तमवर्गः दद्यादेव हि जगिह्वरिणः ॥ यवाभवेऽथ च यवान् दद्यात्तुं नु निषेधः ॥ tot ॥”

—“परीक्षादिनां हेतुः स्नेहस्य च प्रतिष्ठिता । हृत्पथस्य च यवाश्च परीक्ष यवकाले ॥”

The relation of this पौत्रविधिचिन्ता जगिह्वर to Nakula's उपविधिचिन्ता needs to be examined.

2. Cf. मूलक in उपविधिचिन्ता (Bib. Ind. 1867)

P. 39—“यवाभवेऽथ च यवान् दद्याद्देवतान् कृता ॥”

P. 43—“यवाभवेऽथ यवाः शान्तकल्पसं पारम् ।

यवाभवेऽथ च यवान् दद्यात्तुं नु निषेधः ॥

“कृताश्च यवाभवेऽथ देवा कर्तव्ये”

बचानां विधित्तु कश्चिन्ननामोपपत्ते ।
 बचका पंचधा दृष्टाः सुजाताः इतिः क्रमात् ॥ ६१ ॥
 कुसुमादनुकोशस्य प्रादुर्भावेऽसारता ।
 सारत्वमप्यपाकः स्वादित्यं पंचविधो मतः ॥ ६४ ॥
 पुष्पे लवणतिकाभस्तरसो बोधापकवर्णः ।
 भेदकश्च तथा जातः कोशः [?] स्वाम्यधुरो गुहः ॥ ६५ ॥
 श्लेष्मः स्निग्धोर्ध्वसारश्च शोषनो रक्तवर्धनः ।
 रक्तं सारपलं कुप्यान्माधुर्यादप्यर्धं हृद्यः ॥ ६६ ॥
 मेथोमज्जस्त्रिशुकाणां हृद्ये स्थिरतां गतः ।
 योगेनामृतवद्वर्णको मूल्यवेन्यथा ॥ ६७ ॥
 चणको दक्षिणे बिभ्यादुत्तरेण बवाहितः ।
 गोधूमः [?] शिशिरस्थाने माधुर्याक्तिल हृद्ये ॥ ६८ ॥
 सखीरः शोणितप्राणहृद्ये चोष्णवोर्यधृक् ।
 हृद्यः स तंदलो भेदः कारीकठास्य.....रः ॥ ६९ ॥
 गोधूमो जातमाधुर्ये बकोपि न गुणावहः ।
 न्यापन्नरवोर्यत्वात्कुष्ठरोगाय जायते ॥ १०० ॥
 चिकित्सागाधरश्चि राजर्धं धुनीधर ।
 विनयावनतो राजा नैषधः पर्यष्ट्यक्षत ॥ १०१ ॥
 बबयापादिसत्त्वानां विधिवत्कल्त्रयाधुना ।
 चक्रकल्प विधि तात यथावद्वक्तव्यं हि ॥ १०२ ॥
 एवमुक्तो महावार्धः शालिहोत्रोऽभ्यमापत ।
 शृणु नैषध बाहानां गाढविद्वद्वद्वदे ॥ १०३ ॥
 दपोद्रेकाय सत्त्वाय शौहिन्याय ..त्वाय च ।
 एक एवास्ति चणको नापरं तस्यमीदृशं ॥ १०४ ॥
 तत्त्वास्तस्येव ग्रन्थे निरपायो भिषग्वरः ।
 दोषसंशोचनायाप्यवहितं पुष्ट्या [?] च ॥ १०५ ॥
 कृमिसंबचनाद्यावद्दद्याद्विनशतं ।
 कटुज्वलैश्च वा मधुनूतारिष्टेन वा क्वचित् ॥ १०६ ॥
 वि.....समुलोपैश्च विपुल्यस्य मुने.....।
मलशालाभिप्रायि कुमुदोरुके (१) ॥ १०७ ॥
 पञ्चैर्युग्मैश्च.....के ।
 प्रातरग्निर्द्वयैः समं लवणमुच्यते ॥ १०८ ॥
 जनुषानाय परमं दधि.....मलमके ।
 द्वितीये विषमि दद्यात्.....पराया ॥ १०९ ॥
पुष्यं वसंतर्ध (१) ।
 तृतीये रात्रौ चाप्यव्यक्तं :वपराहणे ॥ ११० ॥

..... तैलं प्रयस्यते ।
 न तन् विहितं सर्पिर्मोषमासादिभोजनं ॥ १११ ॥
 अति..... तद्धि शूलजीर्णातिशारकम् ।
 रसं कोष..... र्णं यपमुचिहितं (?) च यत् ॥ ११२ ॥
 तपुश्चि करैरेव पोष्याथा न तु भोजनेः ।
 अताप्रमूलमगानां मातुलुंगसम्पुद्धं ॥ ११३ ॥
 ददाति चयुक्तं मूत्रो योधानामतिमुत्तरं ।
 करोति शूलमाभ्यानं विविधं इति जीवितम् ॥ ११४ ॥
 एवमुक्तं चयुक्ता ये जीर्णचयुक्ता इषाः ।
 तेऽपि सर्वस्वरं यावत्पुष्टा हृष्टा सुमेधसः ॥ ११५ ॥
 भवति भारदृष्टाप्यगमने संगरेहपाः (१) ।
 इति सर्वे समाख्यस्य पुनः संक्षेपितो नृपः ॥ ११६ ॥
 अतः पतति भूमौ गात्रमेधिः सद्योऽपि
 न्यस्यति द्रवपथं मूलमाभ्यानतो वै ।
 लुप्तित (१) इति इ कथौ मूर्च्छितोऽपि विपथिः
 चयुक्तपरोगीलापुनेनोत्थविहः (१) ॥ ११७ ॥
 इति चयुक्तविधिः^१”

Folio 57 —“पुष्पायनं भमद्वरं कथितं यवानां
 वातायुलोमनकरं हि उदा प्रशस्तं ।

कुष्ठपमेहयवनं तदलामलो

नेष्टं मज्जुष्टचयुक्तादपि बान्धयन्त्य ॥ ११८ ॥”

Folio 62—“गुदर्वलप्राणकरः समारसश्चापहः स्वाक्षुषको हयानाम् ॥”

The foregoing long extracts recorded by me from the *चरकसंहिता* of *चरक*, son of *पिक्क* are very important as they throw a flood of light on many points pertaining to the production and consumption of *चय*, *चयस्य* and *चयुक्त* in different parts of India. These extracts open a new field of inquiry about the agricultural history of the several edible grains prescribed as food for horses by *चरक* and other writers on horses, such as *जगद्विज्ञान* of

1. Cf. *अष्टाह* in *उपनिषद्* (Bib. Ind. 1886, Calcutta)

P. 106—*चरकस्य च चरकस्य वै चरकं विद्वन्मन्यते ।*

चरकस्यैव प्रसिद्धता विद्वन्मन्यते चरकस्य ॥ १ ॥”

2. See p. 411 of *चरकसंहिता* by K. M. Vaidya, Trichur, 1936—Here *चयुक्त* or *चयुक्त* is identified with *चयुक्त* (Marathi). According to Nairne (P. 78 of *Flowering Plants of Western India*, 1894) *चयुक्त* is a “doubtful native.” He identifies it with *Crotalaria Purvisiana*. On P. 89, he mentions *Phaseolus Trinervus*—*चयुक्त* which grows in Western India. *Narsari* and *Bhawanisiri* call *चयुक्त* as *चयुक्त*.

hoary antiquity. महुक, जवद्वन, मोत्र etc., not to say वालकाव्य and others whose writings on elephant-lore have come down to us.

On the strength of the above extracts and other features of the *Asvayurveda* of Vagbhata, son of Vikrama, I have to make the following tentative suggestions for verification by brother-scholars :—

(1) *Verse 92* in the above extract is of exceptional interest to us as it tells us emphatically the geographical divisions of India in which three prominent horse-grains were grown about 1000 years ago :—

(i) Vagbhata states that from the *Himalayas upto the Vindhya range* of mountains वष was prominently used as horse-food.

(ii) In the *Southern quarter*, presumably below the Vindhya range वणक was used prominently as horse-food.

(iii) In the *Western regions* महुक was adopted as horse-food. In fact the whole of India was divided into वष-स्थान (above the Vindhyas) and वणक स्थान (below the Vindhyas) as repeated in *verse 98* by our author ("वणको दक्षिणे विप्यादुत्तरेण वषाहितः")

(2) The association of वष with the Vedic Aryans, both as *man's food* and *horse food* continued for more than 2000 years but with the Aryan migration to the southern parts below the Vindhyas, this veteran वष had to fight with वणक, its superior rival that must have been then cultivated in large quantities. On account of its importance for human and animal nourishment, वणक ousted out the veteran वष from the 'menu' of horse and man and has continued its supremacy in this field even to this day. The वष-गोधूम partnership was dissolved more than 1000 years ago and वणक-गोधूम (Gram-Wheat) alliance has governed our kitchens without a break.

(3) The exact date of the *Asvayurveda* of Vagbhata, son of Vikrama, from which I have recorded my data is not known. I may, however, suggest that it appears to be earlier than A.D. 1000. In this connection, I have to point out that in the list¹ of horse-breeds, numbering 54, I don't find the Persian (पारसीक) the Arabian (आज़िबिक) and the Turkish

1. This list is found in कुलाव्य (folios 43-48 of B.O.R. Institute MS of अश्वसुन्दर of साम्ब and consists of the following names :—

(1) कालोव, (2) वण्णिक, (3) वण्णिक, (4) गालाकुल, (5) आरुकुल, (6) वाधेय, (7) त्रैलोक्य, (8) आर्युदेव, (9) सावित्रेय, (10) वीधेय, (11) वाहन, (12) इन्द्र वाहन, (13) लोहार, (14) कालदेव, (15) नारदेय, (16) वारदेव, (17) वरान, (18) वाजदेव, (19) वक्रान, (20) वारदेव, (21) वक्रान्देव, (22) दक्षिणान्देव, (23) वक्रान्देव, (24) वक्रान्देव, (25) वक्रान्देव, (26) वक्रान्देव, (27) वक्रान्देव, (28) वक्रान्देव, (29) वक्रान्देव, (30) वक्रान्देव, (31) वक्रान्देव, (32) वक्रान्देव, (33) वक्रान्देव, (34) वक्रान्देव, (35) वक्रान्देव, (36) वक्रान्देव, (37) वक्रान्देव, (38) वक्रान्देव, (39) वक्रान्देव, (40) वक्रान्देव, (41) वक्रान्देव, (42) वक्रान्देव, (43) वक्रान्देव, (44) वक्रान्देव, (45) वक्रान्देव, (46) वक्रान्देव, (47) वक्रान्देव, (48) वक्रान्देव, (49) वक्रान्देव, (50) वक्रान्देव, (51) वक्रान्देव, (52) वक्रान्देव, (53) वक्रान्देव, (54) वक्रान्देव ।

(तुल्य) breeds which are mentioned uniformly as the best breeds by जयदत्त नयक, सोमेश्वर (A.D. 1130) and mentioned even by हेमचन्द्र (A.D. 1088-1172). These writers flourished between c. 800 and 1250, when the foreign horse-trade with India was carried on at the Western Indian ports on a huge scale to meet the growing demand of Indian princes for the best horses to fight with the superior Muslim cavalry. I am, therefore, of opinion that the *Aśvayurveda* Vāgbhata, son of Vikrama, is possibly earlier than the works of the above writers, which expressly mention the Persian, Arabian and Turkish breeds among the best breeds of horses. The *Arthashastra* of Kauṭilya mentions in its chapter on *Aśvādhyakṣa* (p. 148 of Eng. Trans. 1929) the breeds of *Kamboja*, *Sindhu*, *Aratta* and *Vanāyu* countries as the best, those of *Balhika*, *Papeya*, *Sauvira* and *Taitala* as of middle quality, and the rest, ordinary (*avaraḥ*). The *Amarakośa* (Kāṇḍa II, Kṣatra-varga, verse 45) mentions four kinds of horses viz., *Vanāyujā*, *Pārasika*, *Kamboja* and *Balhika*. In this statement, the mention of the *Pārasika* or the Persian breed is note-worthy; the remaining three are mentioned in Kauṭilya's work and other early texts. If it is suggested that the *Aśvayurveda* of Vāgbhata, son of Vikrama, is later than the works of Jayadatta, Nakula, Someśvara (c.A.D. 1120) and Hemacandra (A.D. 1088-1172), we have to inquire how it fails to mention in its exhaustive list of 54 breeds of horses—the पारसीक, ताजिक and तुल्य horses which are mentioned as best horses by Jayadatta, Nakula and Someśvara. Another omission in Vāgbhata's treatise is that of the names¹ of horses according to colour (वर्ण) such as सेराह, सुहाह, उराह, उरनाह, सोलान, etc., which are mentioned by the above four writers. Hemacandra calls these names as "देशीयाव" but they appear to me to be foreign terms associated with foreign breeds of horses imported to India between A.D. 800 and 1300. In view of these omissions in the treatise of Vāgbhata, I am inclined to suggest tentatively that this treatise is earlier than c.A.D. 1000. More light on this question can be thrown after a close study of the B.O.R. Institute MS No. 581 of 1899-1915, which I propose to undertake at some later date.

1. Vide my paper on these names contributed to the *Nathuram Premi Commemoration Volume* that is being published by Dr. V.S. Agrawala and other friends.

29. Some Cultural Gleanings from the Jñānakāṇḍa of the Kāśyapasaṃhitā of the Vaikhāṇasas*

I have been studying the history of *Canapa* (*cicer arietinum*) or gram during the last three years and have published some papers¹ on it based mainly on Indian sources. These papers have already clarified the history of this important plant for the last 2000 years. There is, however, much scope for its study, especially in texts earlier than 1000 A.D. Recently I happened to read one such text published by the S. V. Oriental Institute, Tirupati viz. the *Jñānakāṇḍa*² of the *Kāśyapa-saṃhitā* of the *Vaikhāṇasas*, a Vaiṣṇava sect with some literature, much of which is still unpublished. This *Jñānakāṇḍa* contains some references to *Canapa*. They are as follows :—

P. 33—Chap. 22—**सर्वबाणिविधि—सप्तदशधान्यानि.** The *Seventeen Grains* are referred to as follows :

“**कृच्छु-मुद्ग-यव-अर्धान्तमन्थर्यं तेन्यो हुत्वा शालि-भीदि-यव-मुद्र-
तिल-माष-प्रियङ्गु-गोधूम-चराक-तिलतिल्व-मसूर-अवली-कुलप-
सर्वप-श्वामाक-पाथिक-निष्पावा इत्येते सप्तदशधान्या भवन्ति ।
एतान् संशोष्य कृच्छुद्वान् प्रोक्ष्य सोममन्थर्यं बलि दद्यात् ”**

P. 82—Chap. 58—**अष्टकुरार्यविधि ।**

“**कृच्छु-मुद्ग-यव-निष्पाव-प्रियङ्गु-गोधूम-चराक-तिलतिल्व-मसूर-
सर्वपाणि धान्यानि सर्वांशमे मुद्गं वा पूर्वमेव यावदष्टकुरार्यं
तावज्जलेषु निक्षिप्य कांक्षयाधे धान्यानि आदाय तेषु सोममन्थर्यं
etc. ”**

P. 138-139—Chap. 85—**दैविकवायुदेवमतिहास्यनष्टभाराहरणम् ।**

“**शालि-भीदि-यव-मुद्ग-माष-प्रियङ्गु-गोधूम-चराक-तिलतिल्व-
मसूर-सर्वपाणि धान्यानि आहरेत् । अष्टकुरार्योक्तधान्या-
नामष्टकुरार्यम् ”**

* *Adyar Library Bulletin*, Vol. pp. 133—140.

1. Vide *Annals* (B. O. R. Institute), Vol. XXVI (1946), pages 59-105 and also
Pratyakṣaṇī (प्रत्यक्षणी), Calcutta, Vol. III, Nos. 1 and 2 (1946), pages 35-39.

2. *Vaikhāṇasya Kāśyapa Jñānakāṇḍa* (S. V. Oriental Series No. 1.). Edited by
Pandit R. Parthasarathi, Tirupati, 1948.

“ विष्णुपत्त-करवीर-नन्यावर्त-पद्म-कुमुदामि पुण्यपुष्पाणि, जाली-
फल-कर्पूर-श्रीवेष्टक-उशीर-मसूर-दमनक-मुद्ग-पराकानां चूर्णम् ”

These references found in a treatise dealing with *Vaiṣṇava* ritual and worship amply prove the status attained by *Caṇaka* at the time this *Jñānakāṇḍa* of the *Kaṣyapaśamhitā* of the *Vaiṣṇavas* was composed. *Caṇaka* (an exotic) seems to have been at this time one of the 17 recognized grains of India with an established status among grains of Indian origin. It appears also to have been considered sacred¹ at this time among the *Vaiṣṇavas* though in some other works on *Dharmaśāstra* its use has been proscribed as I have pointed out in my earlier paper on *Caṇaka*.

As regards the date of the *Vaiṣṇavāstya Kaṣyapaśamhitā* I may record here the views of the editor of its *Jñānakāṇḍa*, Pandit Parthasarathi, as communicated to me in his letter of 7-8-1948. These views are as follows :

- (1) This *Kaṣyapaśamhitā* should date immediately after the *Vaiṣṇavasakalpasūtra*.
- (2) R̥ṣi, Bhṛgu, Atri, Marīci and *Kaṣyapa* were contemporaries and possibly the disciples of the great *Vaiṣṇava*, they produced their works during the life-time or immediately after their Guru.
- (3) The earliest mention of the *Vaiṣṇavasakalpasūtra* is found in the *Bodhayanasūtra*, which is acknowledged to be the earliest of the *Sūtras* in the Vedic period according to Oriental Scholars.
- (4) The *Vaiṣṇavasakalpasūtra* and the *Samhitās*, therefore, date earlier to the *Bodhayana* period.

Bodhayana, the author of the *Dharmaśūtra* and the *Gṛhyasūtra* known by his name is assigned by scholars to about 250 B. C. If this date is correct, the *Bodhayana* period referred to by Pandit Parthasarathi would be about the 3rd cent. B. C. It remains to be seen if the *Kaṣyapaśamhitā* of the *Vaiṣṇavas* in which the references to *Caṇaka* are found is really earlier than 3rd century B. C. The *Jñānakāṇḍa* of the *Vaiṣṇavāstya Kaṣyapaśamhitā* comprises 108 small chapters in simple Sanskrit prose. These chapters contain much objective data of great value to the student of the history of Indian culture. A thorough analysis

1. Compare the use of *Caṇaka* seeds (steeped in water over-night) made by married women in the Deccan at *Hajadi-Kumbh* ceremonies especially during the month of *Caitra*.

of these data may clarify the problem of the chronology of this text. In the meanwhile I record below some notes of cultural value gathered during my cursory perusal of it.

- (1) The following references to *tambula* show that the practice of giving *tambula* to guests etc., was current among the *Vaiṣṇavas*, though in some works on *dharmaśāstra* its use is proscribed on certain sacred occasions :—

- p. 111 — “वस्त्रोत्तं शुद्धं शीतलं स्वादु सुगन्धितं वारि पात्रे पानीयं दत्त्वा छात्रमनान्ते कर्पूर-जातीफल-एला-लवङ्ग-सहितं सकमुकं ताम्बूलं दद्यान्मुल-वासम् ।”
- p. 116 — “वर्ध्मिभ्यर्चिर्वा कमुक्कलेः तल्लिगुणैः दिगुणैर्वा ताम्बूल-पत्रैर्बुको मुल-वासः ।”
- p. 120 — “कर्पूरसहितो मुलवासः ”
“ एलातककोल-जातीफल-कर्पूरसहितो मुलवासः ”
- p. 125 — “ जलं नादेयं वस्त्रोत्तं तं मुलवासं कमुकताम्बूल-एला लवङ्ग-तकोल-कर्पूरयुतम् ”

- (2) There are frequent references to the *Tulasi*¹ plant, so sacred to the *Vaiṣṇavas* :—

1. For the history of the *Tulasi* (Holy Basil) see Pandit Ramesh Bedi's monograph on “*Tulasi*” (*Bhāratīya-Dravyagūṇa-Granthamālā*, No. 4), Lahore, 1946. I note some points from this monograph :

- (i) The *Carakasāhitya* (चि. Chap. 23 and 18) refers to तुलसी (= *Tulasi*) — “*सुखदुःख-मर्हति*” and “*तुलसीस्तिलस्य च*.”
- (ii) The *Susrūtasāhitya* (सु. Ch. 38, verses 16-17) mentions तुलसी, which Dajale (c. A.D. 1100) equates with तुलसी (“*तुलसी इति लोके*”).
- (iii) This plant is not mentioned in the *Vedas*, *Āraṇyakas*, *Brahmaṇyas*, *Purāṇas* or *Aṅgadhyaṇī*.
- (iv) Works referring to *Tulasi* are :—

राजनिषण्ड, कैयदेवनिषण्ड, भावप्रकाश, नृद्वैवर्तपुराण (प्रकृतिलख), बृहद्वैवर्तपुराण, पद्मपुराण (उत्तरखण्ड), प. पु. (किनायोगसार), शङ्खलितिलस्मृति, गणपाठ (mentions तुलसी), बाणदेवोपनिषद्, अथर्ववेदोपपरिशिष्ट, त्रिपादिभूमिमानवाराण्योपनिषद्, रामरहस्योपनिषद्, रामरहस्योपनिषद्, तुलस्युपनिषद्, कार्तिकमाहात्म्य, हरिमण्डितिलास, तुलसीस्तोत्र, रामरहस्योपनिषद्, गीरीतन्त्र (तुलसीमाहात्म्य), स्कन्दपुराण, गरुडपुराण, वायुपुराण, धन्वन्तरिनिषण्ड, राजवल्लभ, योगतरङ्गिणी, योगरत्नाकर, हारीतसंहिता, नृद्वैवर्तपुराण (तुलसीकवच), राघवानुभव, तन्त्रसार, जगत्स्यसंहिता, राजमार्तवद, वेदमनोरमा, योद्ध, मेघन्यायवली, शार्ङ्गचरसंहिता.

p. 5 —“कुरादभपलाशापामार्गतुलसीयुतं ... क्षेत्रम्”

p. 108 —“पत्रेषु तुलसी कण्ठभूतृणं च श्रेष्ठम् । तयोः सहस्रगुणा तुलसी ।

सर्वपुष्पैस्तुलसी देवेशस्य प्रियतमा भवति ।”

- (3) Chap. 57 (pages 80-81) is called “मृत्पिष्टाविविधविमानविधिः”. It deals with the process of casting metal images of deities by the use of wax-moulds. The *Mānasāra* edited by Dr. P. K. Acharya has a chapter on this process called “मृत्पिष्टविधानम्”. The *Caraka Saṃhitā* also refers to this process incidentally (शरीररूपान्) Chap. 3—“यथा—कनकरजतताम्रतुलसीसकनि चासिन्धवानानि तेषु तेषु मृत्पिष्टविग्रहेषु ... ॥ १६ ॥”

- (4) Chap. 50 (pp. 70-72) deals with “देवेशावयविमानविधि” Three classes of picture are defined in the following extract :

p. 70—चित्रं चित्रार्थं चित्राभासमिति चित्रं त्रिविधम् । सर्वावयवसंयुतं मानोन्मानप्रमाण-
सङ्ख्ययुक्तं चित्रम् । तदर्धदर्शनं चित्रार्थम् । पटकुल्यादितोलेषु तेल्यभासासम्”

- (5) Chap. 19 (pages 28-29) deals with “चतुर्ब्रह्मसमाराधनदेवताविधिः”—
Among the deities to be worshipped we find विनायक (p. 29—
“..... विनायकं यजतः पूजयेत्”)

Chap. 27 (दारुप्रपङ्क्याविधि) also refers to विनायक as follows—(p. 42)—
“विग्ररूपाय विनायकाय..... स्वाहा इति ब्रूह्यत्”

Chap. 74 (मूर्तिमन्त्रकर्म) refers to the worship of विनायक (p. 115):—
“वक्रतुण्डं पद्मं च विष्टं विनायकमिति वक्रतुण्डं..... भावाद्य चम्ययेत्”
These are evidently references to god *Ganeśa*.

- (6) Chap. 95 contains a reference to पारद in the following line :

p. 160—“भातोऽपि पारदमादायैवं समाचरेत्” । पारद in this line means *mercury*.
The *Amarakośa* (वैरघर्षा०) mentions 4 synonyms for *mercury* as follows:—

“अथ चपतो रसः सुतप्त पारदे ॥ ७७ ॥”

I have not come across any references to पारद in works composed prior to the Christian era.

- (7) Chap. 12 mentions रोमक in connection with चासुरदेव:—

p. 15—“पापघ्नरोमकभूर्तिकरात्..... चाकीर्ष”

See Hobson-Jobson (Yule and Burnell, London, 1903, p. 931) article on *Tooley* (The holy Basil of the Hindus)—The plant has a kind of sanctity in the Greek Church and a character for sanitary value at least on the shores of the Mediterranean generally.—European notices of *Tulsi* recorded here are dated A. D. 1672, 1673, 1842, 1885. On St. Basil's day women take springs of this plant to be blessed in Church.

(8) Chap. 79 mentions 10 Avatāras as follows :—

p. 127—“ मत्स्यः , कूर्मः , वराहः , नारसिंहः , वामनः , जामदग्न्यरायः , राघवरायः , बलरामः , कृष्णः , कल्की ”

(9) Chap. 72 deals with flowers to be used for worship as also those to be avoided in worship (शास्त्राचार्यपुष्पविधि).

The following flowers are recommended for use in worship :—

चम्पक, जाति, कर्णिकार, पद्म, मञ्जिका, मालती, तुलसी, रत्नोत्पल, करवीर, नन्दाश्वत्थ, पलाश, अशोक, तमालकुसुमोत्पलदिग्गन्धवृक्षलाभकसि(१), कंकणिक, केतकि, कुम्भक, अलसी, पुष्पाग, अर्जुन, कालनन्दा, कपिल, भद्रल, श्वेतिक, श्रीदुर्ग, नन्द, माधवी, नागवृक्ष, अन्नायुः, कपाकि, यहुकर्ण, नृण, धातु, ककुम्भ, दुर्वाङ्कुर, कन्धूक, अर्च, नीलोत्पल, निगुण्डी, उन्मत्तमेघद्विद्वर्णादि(१), सुवर्चला, लीरी, जवा, कोकमाली, द्विद्वर्णी, सुवर्णमाली, कनक, तुलसी, तापसाङ्कुर, मन्त्रिरोपिनी नाम अङ्कुरः..

Flowers to be avoided :—

जपा, किशुक, तुलुगम, कनक, कौकमाली, चतुर्भुज, स्यान्मन्द, कुरण्ड, मण्डक, प्रामीली, दुर्घर्ण.

(10) Chap. 91 deals with castes arising from five main castes (जातयः) viz. (१) ब्राह्मणिकः, (२) क्षत्रियोमाः, (३) प्रसिद्धोमाः, (४) अन्तराष्ट्रः, and (५) बाह्याः. Some of the castes arising by a mixture of these main castes are as follows :

कुम्भक, गोल, भोज, मणिकार, वल्लवकार, अक्षपाल, मातृवक, पारशम्य, विषय, अम्बह, कुम्भकार, मणिक, अमिपित्त(१), शुक्रिक, मङ्गु, अक्षपल्य, अक्षिक, सुषुक् (अष्टाद्विचक्रक), कटकार, कल्लोचक, अक्षायसलीसाभरण, अक्षाल, पुष्कस, पैक्षक, वैदेहक, पाक्षिक, मागध, समुपाय, आयोग्य, पुष्टिन्, सुत, रथकार, नाविक (समुद्रकुनजीवी), वेष्टक, वर्मकार, मत्स्यकम्प, साम्राट् (समुद्रपश्यजीव), सूची, ताप्राजीवि, क्षनक, अक्षनिर्घोषक, उद्गन्धक, रत्ननिर्घोषक, अक्ष, etc.

Students interested in the history of castes and professions may find this chapter useful as the text explains some of these caste-names.

The foregoing notes of a cultural nature gathered at random from the text of the *Jñānabodha* before me lead me to conclude that this text cannot be assigned to any date earlier than the Bodhayana period. On the contrary it appears to be later than the first few centuries of the Christian era as it reveals a very advanced condition of Vaiṣṇava religious worship and ritual.

30. Studies in the History of Indian Plants— The Mahaśali Variety of Rice in Magadha (Between A.D. 600 and 1100)*

In the *Aṣṭaṅgahydaya*¹ of Vāgbhaṭa II there is a chapter called the "annasvarūpa-vijñānīva" devoted to a discussion of dietetics. This chapter has a sub-section called the *Spha-dhanya-varṣa*² which records the varieties of rice (*Sali*) and their properties. These varieties need to be identified with the varieties of rice now current in India and elsewhere in the interests of the history of Indian agricultural products which is still a desideratum. Among these varieties we find a variety called "maha-sali" and the commentators Aruṇadatta (A. D. 1220) and Hemādri (A. D. 1260) attempt to explain the term in their respective commentaries on the *Aṣṭaṅgahydaya* of Vāgbhaṭa II (c. 8th or 9th cent. A. D.). The verse mentioning the rice *maha-sali* reads as follows :—

“ रक्तो महान् उ कलमस्तूर्णकः मकुनाहतः ।
साराधुलो दीर्घाक्षो रोम्भाक्षः सुगन्धिकः ॥ १ ॥ ”

Aruṇadatta explains these varieties as follows :—

(P. 84) —“तत्र रक्ताली — महाराली दुप्रतितायेव । कलमो मगधादिषु प्रसिद्धः । कःप्य महातल्लुक्ष हर्ष कारमीरेषु ।” etc.

From these remarks it appears that the Bengali commentator Aruṇadatta distinguishes *rakta-sali* from *maha-sali*. The variety called *Kālama* was known under that name in Magadha and other provinces in the 13th Century A. D. We are further informed by Aruṇadatta that in Kashmir this very variety *Kālama* was called *maha-taṇḍula*.

Vāgbhaṭa II gives us the varieties of rice and puts *deva-sali* at the top and *maha-sali* next to it in point of their medical properties as will be seen from the following line :—

“ महीरेष्वनु कलमस्तं चाप्यनु ततः परे ॥ ५ ॥ ”

*New Indian Antiquary, Vol. VI, pp. 265-271.

1. Vide *Saṁskṛtadhana* (*adhya* VI), p. 85 of the Edition of the *Aṣṭaṅgahydaya* by Hari Śāstri Parādkar with my English Introduction on Vāgbhaṭa II and his Commentators. Nitya Sagar Press, Bombay, 1939.

2. *Dhanya* is divided into two classes : (1) *Spha-dhanya*, and (2) *Simbi-dhanya*. Rice belongs to the *Spha-dhanya* class.

Arundatta explains :—

“ हस्यानु — रक्षशालेः पश्चात् महान् शाखिर्वरः । तं च महान्तमनु कलमः महत्सु शान् कलमः किञ्चित् ऊनः ह्यर्षः । ततः --अनन्तरम्, परे अन्त्ये शालयः बरा सेवाः । ”

So we get a graded series :—

Rakta-sali—Maha-sali—Kalama and others. Now Hemadri explains and supports the above series as follows :—

“ महाराज्यादीनां गुणानाह—महत्सुमन्विता । समानु रक्षशालेहीनो महान् । तं चाप्यनु कलमः महतो हीनगुणः ” etc.

Hemadri then quotes from *Suśruta* (*Sūtrasthāna*, Chap. 46, 4) ; *Caraka* (*Sūtra*, Chap. 27, 7) ; *Aṣṭāṅga-Saṃgraha* of Vagbhata I (*Sūtra*, Chap. 7) and *Kharaṇādi*, a lost medical treatise. He then concludes as follows :—

“ तस्मात्कोऽयं क्रमः । उपपत्तेः । इह रक्षशाली शब्देन मृदुमपुस्तिसिधुरमिश्रगुणविशद-
स्वल्पावतत्वादीनां लोकास्सदादीनां स्वगुणानामुत्कर्ष उपलक्ष्यते । तेषु यथा यथा समुत्कर्षस्त उक्तमाः ।
यथा यथा अचक्षुर्गते हीनाः । उपलक्ष्यानि पुनर्वक्तुर्विशदामेदाद्विधानि । यानि च गुणान्
सुखस्वास्वादी कलमशब्देनोपलक्ष्यते, तानि च परकवागमटी महाराज्यादीनां शब्देन । ननु संक्ष-
यं विना नोपलक्ष्यते, न च कलमस्य महाराज्यगुणैर्महाराज्यादेर्वा कलमगुणैः कदाचित् संक्ष-
यम् । यदा कलमो महाराज्यगुणे निभक्षते तदा तपोस्तुल्यगुणः स्यात् । स्वलोचनदेव महाराज्येः
स्वलोचन एव कलमो हीनः । एवमितरेष्वपि वाच्यम् । तस्मात्सर्वमेव प्रमाणात्,
उक्तप्रकारेणाविरोधात् ॥ ”

In the quotations given by Hemadri from (1) *Suśruta*, (2) *Caraka*, (3) *Kharaṇādi*, and (4) *Aṣṭāṅga-Saṃgraha* we find a mention of the terms *rakta-sali*, *maha-sali* and *Kalama*. *Suśruta* uses the term *lohasali* for *rakta-sali* and puts it at the top of his list (“ तेषां लोहितः खड्गः ”). *Caraka*, evidently copied by Vagbhata II (the author of the *Aṣṭāṅga-hydaya*) and Vagbhata I (the author of the *Aṣṭāṅga-saṃgraha*) states :—

“ रक्षशालिर्वरस्तेषां तृष्णाप्लविललापः ।
महत्सुषु कलमसर्तं चाप्यनु ततः परे ॥ ”

This gradation of “ रक्षशालि — महाराज्य — कलम ” is exactly identical with that found in the *Aṣṭāṅga-hydaya*. *Kharaṇādi*, however, follows a different gradation as follows :— “ रक्षशालिर्लोचनः कलमोऽनु महत्सुषुः ” viz. “ रक्षशालि—कलम—महाराज्य ”.

All these academic discussions of medical scholars right from *Caraka* to *Hemadri* do not give us any idea about the exact size and other particulars of the grains of rice of each variety, which might enable us to identify these varieties mentioned in ancient treatises with the varieties

now current. Then again there are gaps of time between any two of the several medical authors, who give us these varieties as will be seen from their probable chronology noted below :—

- (1) *Caraka* — earliest extant medical treatise.
- (2) *Suśruta* — earliest extant medical treatise.
- (3) *Kharanādi* — Before A. D. 650 [Vide my papers on this lost medical treatise in *Poona Orientalist*, Vol. IV, pp. 49-62 (1939) and *Annals* (B. O. R. Institute), Vol. XV (1939) pp. 97-102].
- (4) *Aṣṭāṅgasamgraha* of Vāgbhaṭa I — about 625 A. D.
- (5) *Aṣṭāṅghydaya* of Vāgbhaṭa II — 8th or 9th Cent. A. D.
- (6) *Aruṇadatta* — c. A. D. 1220.
- (7) *Hemādri* — c. A. D. 1260.

In view of the above chronology it is difficult to visualize with any degree of certainty the several varieties of rice mentioned by the earliest treatises of *Caraka* and *Suśruta* and accept *in toto* the explanations, howsoever academic, offered by late commentators of the 13th century A. D. as recorded above. We must, therefore, search for some contemporary historical evidence regarding each of these varieties of rice. In the present paper I shall record such evidence from a Chinese source¹ of the 7th century A.D. with respect to the *Mahāsali* variety only. This evidence is furnished by the *Life* of the celebrated Chinese traveller Hiuen-Tsiang written by his pupil. While describing his guru's visit to the Nālanda monastery (in Bihar) he refers to the different branches of learning in which the priests of the monastery were carrying on their studies. He refers to non-Buddhist Śāstras "Such as the *Vedas* and other books, the *Hetuvidyā*, *Sabдавidyā*, the *Cikitsavidyā*, the works on magic (*Atharvaveda*), the *Sāṅkhya*" etc. He further describes the royal patronage to the priests of the monastery founded "700 years" before his visit as follows :—

"The King of the country respects and honours the priests and has remitted the revenues of about 100 villages for the endowment of the convent. Two hundred householders in these villages, day by day, contribute several hundred *piculs* of ordinary rice and several hundred

1. Vide p. 109 of *Life of Hiuen-Tsiang* by the Shaman Hwui Li with an Introduction containing an account of the Works of I-tsing by Samuel Beal, London, (1911), (Trubner and Co.). Hiuen-Tsiang returned to China after his sojourn in India in the year 645 A.D. and died in the year 664 A.D. After this event I-tsing in the year 671 or 672 resolved to visit the Western World (Vide Intro. p. xiv).

catties in weight of butter and milk. Hence the students here, being abundantly supplied, do not require to ask for the four requisites. This is the source of the purification of their studies to which they have arrived."

Referring to his guru's residence at the Nalanda monastery the pupil of this Chinese traveller states as follows :—

P. 109—"After this he went to reside in a dwelling to the north of the abode of Dharmapāla Bodhisattva, where he was provided with every sort of charitable offering. Each day he received 120 *Jambiras*, 20 *Pin-long-sten* (puga, arecanut), 20 *tan-k'an* (nutmegs), an ounce (tael) of camphor and a ching (peck) of *Mahāsali* rice. This rice is as large as the black bean and when cooked is aromatic and shining, like no other rice at all. It grows only in Magadha, and no where else. It is offered only to the King or to religious persons of great distinction and hence the name *Kung-ta-jin-mai* (i.e. rice offered to the great householder). Every month he was presented with three measures of oil and a daily supply of butter and other things according to his need."

The above description of the *Mahāsali* is very important for the history of this variety of rice which is mentioned by the earliest medical treatises of Caraka and Susruta but about which we fail to get any descriptive notes of an objective character. Hemādri in his remarks mentions the ideal qualities and characteristics of rice by the adjectives *रुच* (soft), *मधुर* (sweet), *लिप्य* (oily), *सुगन्धि* (sweet-smelling or odorous), *रङ्ग* (white or bright in colour), *चिर* (shining), *बृह* (big) and *दीर्घ* (long) and some of these characteristics viz. *bigness, aroma, shining appearance* etc. are incidentally found recorded in the foregoing Chinese description of the *Mahāsali* rice of Magadha eaten by Hiuen-Tsiang during his stay at the Nālanda monastery in the 2nd quarter of the 7th century A.D.

The *Life of Hiuen-Tsiang* in which the description of the *Mahāsali* rice is recorded by his disciple Shaman Hwui-li is a supplement to the *Record of the Western Countries* and "what is obscure or half told in the one is made clear in the other." Hiuen-Tsiang (=HT) was born in the year 600 A.D. He left for India in 629 A.D., where he had his sojourn for 16 years and returned to China in 645 A.D. In view of this chronology for HT's *Travels in India* the above description of the *Mahāsali* rice recorded by his disciple is a piece of reliable contemporary evidence. The description asserts that the *Mahāsali* rice was produced

1. *Ibid.*, pp. 112-113—The Editor explains :—1 picul = 133½ lbs. ; 1 catty = 160 lbs. and 4 requisites = clothes, food, bedding and medicine.

in *Magadha* and nowhere else. This statement is wonderfully corroborated by the earliest commentator on *Caraka*, viz. Cakrapāṇidatta of Bengal who flourished 400 years after *HT* i.e. c.A.D. 1060. Cakrapāṇidatta (also called Cakradatta) explains¹ Caraka's remarks on the varieties of rice *Kalama* and *Mahāsālī* as follows:—

“यत्तु प्रचरति गौडि तल्लेसिप्यामः । अन्यदेशप्रसिद्धं च किञ्चित् ।”

.....कलमो वेदाप्रशारेषु स्वनामप्रसिद्धः.....महाशालिर्मगधे प्रसिद्धः.....

रकरालिगुणान् महाशालेर्मनागल्पाः एवं तस्यानु कलम इत्यत्रापि वाच्यम्”

Cakradatta maintains without any confusion the distinction between *Kalama* and *Mahāsālī* found in *Caraka*, *Sūtrata* and *Khāraṇāḍī* and also informs us that *Mahāsālī* was celebrated in *Magadha*.

Another Bengali commentator viz. Arunadatta who flourished about 160 years later than Cakradatta i.e. in A.D. 1220 represents a different tradition about the home of the *Mahāsālī* and *Kalama* varieties as we have seen above. In fact he states that *Kalama* was celebrated in *Magadha* (कलमो मगधादिषु प्रसिद्धः) and further asserts that this very *Kalama* rice was known as *mahatāṇḍula* in *Kashmir* (त एव महातण्डुल इति कश्मीरेषु). If by महातण्डुल Arunadatta means महाशालि we have to suppose that in the 13th century the *Kalama* variety of rice had come to be associated with *Magadha* in the manner of the *Mahāsālī* variety and further it was called महातण्डुल which may be a mere paraphrase of the term महाशालि. Whatever be the true history behind the remarks of Arunadatta we have reason to believe that Arunadatta may not have been very critical and accurate in his remarks about *Kalama* which he distinguishes from रकरालि but equates with महातण्डुल of *Kashmir* current in his days.

Leaving aside the dubious statements of Arunadatta we have to note that Hemadri, a junior contemporary of Arunadatta evidently distinguishes between कलम and महाशालि and regards कलम as slightly inferior to महाशालि when he states:—

“स्वदेशजादेव महाशालेः स्वदेश ९९ कलमो हीनः”

This statement of Hemadri (A.D. 1260) the minister of the Yadava Kings of Devagiri (Daulatabad) shows that in the medical circles of South India in the 2nd half of the 13th century, the original distinction and status of *Kalama* and *Mahāsālī* as found in *Caraka* and *Sūtrata* was recognised.

1. Vide p. 148 of *Carakasamhitā* with Cakradatta's commentary (N. S. Press, Bombay, 1922, *Satratthana*, Chap. 27).

With a view to clarify our discussion we give below the evidence discussed so far in a tabular form as follows :—

Source	Chronology	Terms used	Where produced	Remarks
कारक ¹	Earliest medical treatise.	(१) महाशाकि (२) कलम	Not mentioned.	महाशाकि and कलम distinguished
सुश्रुत	Do	Do	Do	Do
सारसाहि	Before A.D. 650	(१) महान् (२) कलम	Do	Do
चरकसंहिता	c.A.D. 625	"महान् स कलमः"	Do	Possibly महान् = कलम
Life of Hiuen-Tsiang	c. A.D. 640	महाशाकि	मगध	" (महाशाकि) grows only in मगध and nowhere else."
चरकसंहिता	8th or 9th cent. A.D.	"महान् स कलमः"	Not mentioned.	Possibly महान् = कलम
चरकसंहिता	c. A.D. 1060	(१) महाशाकि (२) कलम...	— मगध — वेदाग्रहारेण	" महाशाकिर्विषये प्रसिद्धः " " कलमो वेदाग्रहारेणु स्थानम्-प्रसिद्धः "
कलमसंहिता	c. A.D. 1220	(१) कलम (२) महाशाकि (३) महातण्डुल	— मगध Not mentioned. — कारमोर	"कलमो मगधादिषु प्रसिद्धः " कलम = महातण्डुल of Kashmir (" स एष महातण्डुल इति कारमोरेषु ")
हेमाचि	c. A.D. 1260	(१) महाशाकि (२) कलम	Not mentioned. Do	महाशाकि and कलम distinguished Do

1. *Bhasanishita* (Calcutta, 1921), p. 127, mentions कलम variety of rice :—

"कलमार् दीर्घाख्यं रक्तानीयं लक्ष्मिन्". P. 48 — "दीर्घाख्यो महाशाकिः पुष्पाभिः लक्ष्मिन्" (महाशाकिः ought to be महाशाकिः).

It appears from the above table that medical tradition from *Caraka* and *Suśruta* onwards up to A. D. 1300 or so maintained the distinction between the महापालि variety of rice and the कलम variety. The statement "महार स कलमः" used by the *Aṣṭāṅgasamgraha* (c. A.D. 625) and repeated by the *Aṣṭāṅgaśāstrya* (8th or 9th cent. A.D.) suggests that महापालि and कलम were possibly losing their distinctive characteristics, thus leading to the merging of the two varieties into one variety, whether called महापालि or कलम or महावण्डुल. It is, however, certain that a variety called महापालि possessing eminent qualities of rice so beautifully expressed by Hemadri in the 13th century was a speciality of Magadha, where it was used by the Chinese pilgrim Hiuen-Tsiang (between A. D. 629 and 645) during his stay at the *Nalanda* monastery in Magadha. The fame of Magadha as the home of the महापालि variety of rice remained intact from c. A. D. 630 to 1060, a period of 430 years as proved by the Chinese evidence of A. D. 640 or so, which gets corroborated by the later statement of the Bengali commentator Cakradatta of c. A. D. 1060.

Though references to the महापालि variety of rice are rare in the classical Sanskrit literature we find some reference to the कलम variety as the following quotations will amply illustrate:—

(1) KALIDĀSA in his *Kumārasambhava* (V, 47) refers to the *Kalama* rice as follows:—

“महो स्मिरः कोऽपि तवेक्षितो दुषा
चिराय कण्ठोत्पलपुन्यतां गते ।
उपेक्षते यः स्थलम्बिनो जटाः
कपोलदेशे कलमापचिक्षणाः ॥ ४७ ॥”

Mallinātha explains:— “कलमाः शालिपिशोः तेषां जगणि तदन् पित्राः जटाः उपेक्षते ”

Again he refers to *Kalama* rice plants in the *Raghuvamśa*¹ (IV, 37) as follows:—

“भावादर्घ्यपणता कलमा इव ते रघुम् ।
फलैः संवर्धयामुस्तु तमहिरोपिशाः ॥ ३७ ॥”

Mallinātha explains:—

“कलमा इव शालिपिशोः इव ।
“शालयः कलमाद्य बहिष्काराय पुंस्यमो ”
इति अमरः ”

1. *Raghuvamśa* (Bombay, 1900) Notes, p. 81,

Mr. M. R. Kale while explaining the above simile observes :—

"The paddy flourished in water and so did the Vaṅgas¹ who were great navigators (नौसपनाः) and Raghu attacked them at a time when the paddies were probably bent low on account of the weight of corn."

(2) BHĀRAVĪ in his *Kirātārjunīya* (IV, 4) refers to the *Kalama* rice as follows :—

"द्रुतोष पर्यन्तकलमस्य लोषिद्धं
स शरित्ते शरित्ति समणोयकम् "

Mr. Kale observes :—

"The paddy fields are covered over with water during the rains and often abound in lotuses."

Mr. Apte in his *Dictionary* explains कलम² as "Rice which is sown in May-June and ripens in December-January." The *Uṇādi Sūtras* (84) refer to *Kalama* rice.

In this way it is possible to know some details about the *Kalama* rice from early Sanskrit sources, not to say the Jaina and the Buddhist ones. We must, however, leave this subject for a further study.

(3) In the *Subhāṣitaratnabhāṇḍagāra* (N. S. Press, Bombay, 1900) we get some verses, though anonymous about शालि and कलम as follows :—

Page 254 — शालिः

"शशासंततलनिहृदभसो भूयांस एवाचनौ
पिपन्ते तरवः कलैरिषकलैरातिन्विद्ः शालिनाम् ।
किंतु दिग्दर्शैरलंकृततनोः शालोःस्तुमस्तुल्यतां
दत्वा येन निजं शिरः सुकृतिना को नाम न प्रोषितः ॥ १७६ ॥ "

1. Though Kālidāsa here compares the Vaṅgas (or people of Eastern Bengal) to *Kalama* rice plants, it is difficult to conclude from this simile whether he looked upon मगध (South Bihar) or वज्ज as the original home of the *Kalama* rice plant. It is also possible to infer that the *Kalama* rice may have been cultivated in Vāṅga, though the *Life of Hiuen-Tsang* contains the explicit statement that the *मगध* rice "grows in *Magadha* and nowhere else." Presuming the early distinction between *मगध* and *वज्ज* to be true to history we may suppose that—

(1) the *मगध* rice was grown especially in मगध and (2) the *वज्ज* rice was grown in वज्ज or Eastern Bengal in Kālidāsa's time. This presumption would be in perfect harmony with the statement in the *Life of H. T.* that *मगध* rice was grown only in मगध.

2. According to *Pañcoddamahāvya* by Hargoviada Das (1923-28) p. 289, the word *कलम* is used in the following Prahrit works :—

(1) उषासगन्धर्वो, (२) अश्विपुत्रादि, (३) तद्वचनानामयथा

Page 255 — कलमाः

“कलमाः पाकविनया मूलतलाप्राप्तमुनिष्काराः ।
 वचनाकम्पितस्त्रिस्तः प्रायः कुर्वन्ति परिमलकायाम् ॥ १६६ ॥
 अल्पानविहि कलमा न्लयाह तानाम्
 येषां प्रचक्षुस्तैरपदाततैः ।
 स्नेहं विमुच्य सहसा ससती प्रयान्ति
 ये स्वल्पोदनपानान्न वयं तिलास्ते ॥ १६७ ॥”

In the article on *Rice* in the *Hobson-Jobson* (by Yule and Burnell, London, 1903, pp. 763-764) we are told that the knowledge of *Rice* came to Greece from the expedition of Alexander. The references to *rice* between B. C. 320 and A. D. 90 recorded in this article are as follows :—

- (1) B. C. 320-300 — *Theophrastus* (earliest Greek references to *rice* almost during the life-time of Alexander).
- (2) B. C. c. 20 — *Strabo* quotes *Aristobulus*, a companion of Alexander's expedition in his description of *rice* plant and its cultivation.
- (3) B. C. 300 — *Athanasius* iv. §39 — *Megasthenes* is quoted regarding the use of *rice* by Indians.
- (4) A. D. 80-90 — *Periplus* §41 — Peninsula of Guzerat (*systræne*) produces *wheat*, *rice*, *sesamin oil*, *butter* and *cotton* and piecegoods made from it.

In all these early foreign references to *rice* no mention of any variety of *rice* is made in the manner of our early medical texts like *Caraka* and *Susruta*. We must, therefore, study all the varieties of *rice* mentioned in our earliest medical and other literature and try to reconstruct their history with a view to clarify our knowledge of the history¹ of Indian economic products which is at present in a nebulous condition.

1. Vide pp. 127-131 of *Arthashastra* (Trans. 1929) Chap. XXIV. Superintendent of Agriculture. Much valuable information regarding such history is recorded by Kautilya. He states that *शालि* and *वीहि* are to be sown at the commencement of the rainy season. On p. 101 *शालि* and *वीहि* are again mentioned. On p. 102 we are told that one meal of an *Arya* should consist of one *prastha* of *rice*, pure and unsplitted, one-fourth *prastha* of *spha* and clarified butter or oil equal to one-fourth part of *spha*—Dogs are to be given one *prastha* of cooked *rice*—*वीहि* increases four times when cooked, while *शालि* increases five times when cooked,—p. 147—*शालि* and *वीहि* are given to best horses and to elephants (p. 152).

31. Studies in the History of Indian Plants Antiquity of Jawar or Jondhla (*Holcus Sorghum*) (From B.C. 2200 to A.D. 1850)*

In July 1941, I published a short paper¹ on the *History of the Fig* (*Ficus Carica*) recording its history from c. B.C. 1000 to A.D. 1800. My main object in preparing this paper was to record the history of this plant from foreign and Indian sources and to point out how it was gradually assimilated by the Indian *Materia Medica* like many other plants of foreign origin. This paper of mine has received better appreciation² from Sanskrit scholars, botanists and medical men than I expected. Dr. Birbal Sahni, F.R.S., Dean of the Faculty of Science, Lucknow University, directed my attention to a recent book on the *History of Plant Sciences*³ by Howard S. Reed which has two chapters "on the history of the plant lore of the ancients, where Egypt and Assyria, Greece and Rome, China and early America are all adequately treated" but "one looks in vain for a bare mention of ancient India which was certainly well abreast of the times and gave much that the West has assimilated, though not always gracefully acknowledged." Dr. Sahni rightly observes that the Retrogressive Period (Chap. IV of Reed's book) was retrogressive only so far as the occidental nations were concerned.

The study of Indian culture in all its aspects of which the history of Indian plants is but one aspect has not yet been properly carried out

* Dr. B.C. Law Volume, part I, pp. 142-158.

1. *Vide*, pp. 123-136 of *New Indian Antiquary* Vol. IV (1941-42).

2. Dr. P. M. Mehta, M.D., M.S., Chief Medical Officer, Jamnagar State, who is deeply interested in Indian Botany and Ayurvedic System of Medicine suggested that I should take up a systematic study of other plants of medical and nutritive value. His constant correspondence with me during the last 3 years has been responsible for maintaining my interest in the history of Indian Medicines. I am thankful to him for supplying me extracts from works on medicine and botany not easily accessible to me in local libraries.

3. *Vide*, p. 369 of *Current Science*, 1942, XI, No. 9 where Dr. Sahni's interesting review of Reed's book appears. A copy of this review was kindly sent to me by Dr. Sahni, who wrote to me on 12th January 1943 :—"I have read with much interest your Notes on the *History of the Fig* (*Ficus Carica*). I think you would be doing a service to Indian Botany if similarly you were to work out the history of our knowledge of other common Indian plants of medicinal or nutritive value. Our own ignorance concerning this subject is colossal and we can scarcely blame the western writers if they ignore the ancient Hindu knowledge of the plant sciences."

in spite of the wealth of material in Jain, Brahmanical, Buddhist and foreign sources in contact with India from remote antiquity. It is, therefore, no fault of the Western writers if they ignore the ancient Hindu knowledge of our sciences as reflected in the literary and other sources now available for study. In view of the unsatisfactory character of the history of Indian plant sciences as pointed out by Dr. Sahni I have thought it advisable to note down and record as many facts about the history of different Indian plants as I can gather during the course of my other studies pertaining to the history of Indian Culture in all its manifold aspects. As one such effort in the field of this history I shall deal with the antiquity of *Holcus Sorghum* (*Jawar* or *Jondhla*) which is supposed to be the earliest of the wild plants to be domesticated according to SWANSON and LAUDE,¹ who record the following points regarding its antiquity:—

- (i) *Holcus Sorghum* is indigenous of Equatorial Africa and Asia.
- (ii) Evidence of its existence about 2200 B.C. is furnished by one of the Egyptian tombs of this date.
- (iii) In the Bible (Book of Ezekiel) the word *dochan* occurs. It is translated by the word *millet* but it is possible that it signifies the *Sorghum*.
- (iv) The cultivation of *Sorghum* in Asia, particularly in India is very old.
- (v) *Sorghum* was grown as early as 3rd Century A.D. in China, where it was probably introduced.

Watt in his *Dictionary of Economic Products of India*² devotes some space to the history of *Sorghum*. I note below some points from his remarks:—

- (1) Some of the cultivated *Sorghums* had been developed in India.
- (2) Sir Water Elliot pointed out that the most general Sanskrit name for the crop, *yavana* denotes in other connections a Greek, Muhammadan or stranger while its Persian name *juar-i-hindi* shows that it reached Persia, at least from India.
- (3) De Candolle lays a certain amount of stress on "the absence of a Sanskrit name as rendering the Indian origin doubtful."

1. Vide *Bulletin No. 266* (1934) by A. F. SWANSON and LAUDE—"Varieties of *Sorghum* in Kansas" (Kansas State College of Agriculture and Allied Science, U. S. A.) This *Bulletin* was not accessible to me but the pertinent information was supplied to me by my brother Mr. R. B. Gode, M.Sc. Assistant Investigator, Govt. Dry Farming Scheme (1933 to 1943) and now Bio-Chemist to Govt. for the Bombay Province.

2. Vide pp. 291-292 of Vol. VI, Part III, London and Calcutta. 1893.

- (4) Some writers have given *Zarna* or *Zāra* as the Sanskrit for this grain, but if that be the case, neither *Dhāra* or *Zāra* has given origin to any of the Indian names. *Zāra* or *Zārna* is moreover, clearly derived from the Arabic *Dhāra*. The Arabic word has on the other hand passed into the Egyptian and perhaps also the Hebrew, so that it seems almost justifiable to say that the aboriginal people of India knew of and perhaps cultivated their indigenous *Sorghum* long anterior to the Aryan invasion. Indeed, it may be assumed that the Sanskrit people first learned of this grain in India, but gave themselves very little concern regarding it. But, indeed, the absence of any allusion to it in the classic literature of the Sanskrit people can hardly be advanced as positive proof that it was unknown to them. The religious associations of the grain, the observances of cultivation and the multiplicity of forms of the crop, all point, to an antiquity quite as great as can be shown for most other articles of the humbler phases of life. The absence of any historic indications of an ancient importation and the presence in India of an abundant wild species that affords a large conspicuous edible grain seem, when taken in conjunction with the argument already advanced, "conclusive evidence in support of the opinion that many of the forms of this millet are beyond doubt natives of India."
- (5) "SMITH (*History of Bible Plants*, p. 214) has endeavoured to show that the stalks of this millet were very probably the reed of *St. Mathew* and that the spikelets on its top were very likely the hyssop of *St. John* mentioned at the crucifixion. The hyssop (*Esob* of the Hebrews) of *Moses* was a word used to denote any common article in the form of a broom of a material suitable for that purpose. If this view be accepted, the cultivation of *Sorghum* in Palestine may be regarded as very ancient."¹

1. *Ibid.* p. 295. These remarks read in conjunction with the existence of *Sorghum* in an Egyptian tomb of 2200 B.C. may tend to confirm the belief that the *Sorghum* has very great antiquity say of more than 5000 years and if the theory of its importation to India from Africa is accepted we have to suppose that this importation took place in remote antiquity prior to the Christian Era. The evidence recorded in this paper shows its existence on Indian soil for the last 2000 years. It is for the students of the pre-historic culture of India to investigate the exact period of the suggested importation. In the meanwhile we may accept Watt's conclusion that the *Sorghum* and its varieties are natives of India.

The foregoing scholarly collection of facts and views bearing on the history of the *Sorghum*, though illuminating, is not conclusive so far as the antiquity of *Sorghum* in India is concerned. It is the purpose of this paper to record some useful data bearing on this antiquity so that the whole problem should be clarified by the application of the chronological method of recording textual evidence adopted by me in my present study of the problem. In recording my evidence I shall follow the method of proceeding from the present to the past so that readers may know how far I have penetrated the mist of antiquity gathered round this important grain the *Sorghum*, the sustainer of life in different parts of India even in its worst quality now rationed out to millions of my countrymen consequent upon the exigencies of the present world-war.

JOHN GRAHAM published in 1839 his book on *Plants growing in Bombay and its vicinity* in which he refers to *Jowaree* and *Bajree* as follows :—

Page 237 —*Holcus* (From *Helko* to draw in allusion to the supposed emollient properties of a grass to which this name was given.

Page 238 —*Holcus Shicatus* —*Bajree*—extensively cultivated and forms a very important article of food along *Jondhala*.

Holcus Sorghum—JOWAREE—Jondhla, the great millet a well-known cereal. The straw called *Kurbee* is reckoned very nourishing for cattle and is a substitute for forage for horses, when grass is not obtainable.

EDWARD MOOR, one of the founders of the Royal Asiatic Society London, served with the Maratha army against Tipoo Sultan in A.D. 1790-91. In his *Narrative of the Operations* etc. published in London in 1794 he refers to *Jawary* as follows :—

Page 278—In Chapter XXI Moor gives historical and descriptive particulars of Canara and the Canarese. In this connection he states :—

"We learned that in times of plenty, the ordinary price¹ of provisions was in this proportion : a bullock load of *jowary* for a rupee or four sheep or twenty fowls : sheep we have frequently picked at half a rupee each. A bullock load is eighty *pucka seer* which at a liberal allowance will serve a family of six persons a month." On page 505 Moor explains *Jawary* as "A grain called in America and the West Indies Guinea Corn."

1. *Jawaris* selling at 4 *seers* a rupee in Poona at Present (August 1943). About A.D. 1790, when the Peshwa was still ruling at Poona its cost in the Deccan is indicated by Moor's statement "a bullock-load of *jowary* for a rupee." He further explains "a bullock-load" as equal to 80 *pucka seers*. It is clear, therefore, that the cost of *jowary* has increased 20 times. Students of Indian Economics should ponder over this contrast.

YULE and BURNELL record usages of the *Jowair*, *Jowarree* in their monumental work *Hobson-Jobson*.¹ These usages are taken from sources dated c. 1590, 1760, 1800, 1813, 1819 and 1826. The earliest of these usages is from *Ain-i-Akbari* by Abul Fazl (trans. by Blochman and Jarrett) and reads as "*Jowari*" as will be seen from the following extract :—

"C. 1590 —In Khandesh "*Jowari* is chiefly cultivated, in some places, there are three crops in a year, and its stock is so delicate and pleasant to the taste that it is regarded in the light of a fruit" Ain ed. Jarrett, ii, 223."

Other usages are —1760 (*Jouri*), 1800 (*jawarry*), 1813 (*juarree*), 1819 (*joiwaree*), 1826 (*Joanee*).

MARSDEN in his book on *Sumatra* (London, 1784) refers to a kind of *padde* as "*peddee Jerroo*" as follows :—"In the Lampon country they make a distinction of *padde crawan* and *paddee jerroo*, the former of which is a month earlier than the latter."

I cannot say if the word "*jerroo*" mentioned by Marsden has any connection with the word *Jawār* or *Jwar*.

RAGHUNATHA GANESA NAVAHASTA* (C. A.D. 1640-1712) a friend of Saint Rāmdas of Mahārāṣṭra composed a work on dietetics called the *Bhojana-kutūhala* (MS No. 594 of 1899-1915 dated A.C. 1803 in the Govt. MSS Library at the B. O. R. Institute, Poona). In the 1st *Paricceda* of this work represented by the above MS I find the varieties of *Yavanāla*³ mentioned as follows :—

1. Vide p. 465 of *Hobson-Jobson* (London, 1903)—"*Jowair, Jowarree* S. Hind, *jowar, jawar* (Skt. *yavaprobhara* or *akara*: 'of the nature of barley.') *Sorghum Vulgare*. Pers. (*Holcus Sorghum* L.) one of the best and most frequently grown of the tall millets of southern countries. It is grown nearly all over India in the unlooded tract; it is sown about July and reaped in November. The reed systems are 8 to 10 feet high. It is the *cholan* of the Tamil regions. The stalks are *kirbae*. The Ar. *dura* or *dhura* is perhaps the same word ultimately as *jawar*; for the old Semitic name is *dura*, from the smoky aspect of the grain. It is an odd instance of the looseness which used to pervade dictionaries and glossaries that R. Drummond (*Illus. of the Gram. Parts of Guzerat* etc. Bombay, 1808) calls *Jooku*, a kind of *pulse*, the food of the common people."

2. Vide my papers on this author in the *Journal of the Bombay University* Vol. X, p.p. 132-140. *Annals* (B.O.R. Institute) Vol. XXII, 254, 263 and *Journal of S. M. Library, Tanjore*. Vol. III, pp. 1-12

3. A Hindi Court-poet of Seval Jaising of Amber (A.D. 1699-1743) has composed a *Cookery book* *भोजनत* (MS No. 1515 of 1891-95 in the Govt. MSS Library at B. O. R. Institute, Poona). The name of this poet is भोजनी and he composed this work in A.D. 1735. In the following extract he describes the preparations of *कवारि* and *कवारि* as current in the royal kitchen :—

Folio 5 —“अथ यावनाक्ष गुणाः—॥ नि ॥

अवलो यावनाक्षस्तु गोत्यो बल्यष्टिदोषजित् ।
 वृष्यो रुचिप्रदोषोन्नः वृष्यो गुल्मघ्णायहः ॥
 गुषरो यावनाक्षस्तु कषायोलो विशेषकृत् ।
 संप्राहो वातघ्नमनो विदाहो क्षोषकारकः । ॥ रक्तस्य ॥
 शारवो यावनाक्षस्तु रलेष्मलः पित्तलो गुहः ।
 शिशिरो मधुरो वृष्यो दोषघ्नो बलिपुष्टिदः ॥ शाल् ॥
 यावनालो महान्बल्यो दुर्जरो वातपित्तकृत् ।
 वृष्यः संतर्पणो बालप्रिया मष्ठा समुद्रुषाः ॥ मष्ठा ॥”

Folio 71 —“यावनाक्ष गुह” is mentioned in the following extract :—

“स्याद्यावनाक्षरसपाकभाषो गुहोऽयं ।
 शारः कषायमधुरः कफघ्नतहारि ।
 पित्तप्रदः सततमेव निषेच्यमाणः ।
 रुहतिदुष्टजननो रुचिदाहृदाह ॥”

It will be seen from the evidence to be recorded subsequently that *Yavanala* is a synonym for *Jawar* or *Jondhla*.

SĀDHU SUNDARAGANI, a Jain lexicographer who composed his *Dhaturatnakarain* Samvat 1680 = A.D. 1624 refers to *Yavanala* or *Jonnala* as follows in his lexicon called the *Sabdaratnakura*¹ :—

(4th Kāṇḍa, verse 257)—

“जोषाला यवनाक्ष, जूला, जूषिः सणः सणः ॥ २५७ ॥”

In Marathi document of A.D. 1541 published by the historian Rajawade we find *Jondhla* mentioned as *जोमल* (*Jojhala*) several times. I reproduce one entry from this document as follows :—

“जोमल गह दुरो
 २॥१॥ ॥३॥ ॥३॥”

NARAHARI in his medical glossary called the *Rajanighaṇṭu* composed in Kashmir C. A.D. 1450 refers to *Yavanala* and its properties as follows :—

“अथ अथारि दुरो वीर्यं
 हरीवरो दुरो गुन गायति नके बर्धतुवाल लगाया ।
 केकी वसि चाकरो क्षेप उष्य उष्य वासत हरिसोष ।
 इति अथारि वनेना वीर्यं
 अथ वासने की वनेना
 सिरा हरेनरे लेषावै तिवर्धो लेष अत्रि यह दास
 उष्य उष्य वासत हरिराव सिरावारी ताके वसि जाय ॥ ५३८ ॥”

1. Ed. by Hargovindas and Dechajdas, *Rekater* (Varna Kra 2439).

2. *Vide Sources of Marathi History* (Kharak 17, Document No. 62).

3. Ed. *Anandashram Sanskrit Series*, Poona, 1890.

Page 360—(१०) याचनालः ।

“याचनालोऽयं नदिजो दत्तवाचरिसंभवः ।

याचनालनिमस्वैव क्षरपत्रः सदाह्वयः ॥ ३८ ॥

गुणः— याचनालसंयुक्तमोषन्मधुरक्यम् ।

शोतं पितृनायात्रं पश्यायबलदम् ॥ ३९ ॥”

Sugar produced from *Yavanala* is called *Yāvanālī Saṅkara* and is mentioned by Narahari as follows :—

Page 91—“याचनालो (कर्कराशिरोषः)

याचनालो हिमोत्पन्ना हिमानी हिमसर्करा ।

तुदसर्करिका तुदा गुब्जा जलकिन्दुजा ॥ १६३ ॥”

King Madanapāla of Kāśṭh race, ruling on the banks of the Jumna composed his medical glossary called the *Madanaviḥgaṇṣu*¹ in A.D. 1374. In this work he refers to *Yavanala* and its synonyms as follows :—

Pape 123—धान्यादिष्वर्त

“यचनालो देवान्यं जूर्णाहो जलतो नलः ॥ ८२ ॥

यचनालः स्वादुशोतो वातलः कफदित्तजित् ॥ ८३ ॥”

We have now seen that Sadhu Sundaragaṇi (A.D. 1624) uses the words जूर्णा, जूर्णः for याचनाल and that Madanapāla (A.D. 1374) uses the word जूर्णाहो for यचनाल. Hemadri, the famous minister of the Yādavas of Devagiri (A.D. 1260) composed a commentary called the *Āyurvedarāyaṇa*² on the voluminous medical compendium of Vagbhāṭa II (c. 8th or 9th cent. A.D. according to Hoernle) called the *Aṣṭāṅgahṛdaya*, in which we find the word जूर्ण mentioned :—

Sūtrasthāna, Chap. 14, verse 21—

“कुलपजूर्णरयासाकयवपुद्गलकम् ॥ २६ ॥

Hemadri (A.D. 1260) explains in his commentary the word जूर्ण (*Jūrṇa*) used by Vagbhāṭa II as follows :—

“जूर्णो—याचनालः”

This explanation shows that about 700 years ago the word याचनाल, which is given as an equivalent of जोमाला by Sadhu Sundaragaṇi (A.D. 1624), meant जूर्ण a term for *Jawar*, which seems to have great antiquity.

In A.D. 1220 Arunadatta, the Bengali commentator of the *Aṣṭāṅgahṛdaya* explains the जूर्ण of Vagbhāṭa II (8th or 9th cent. A.D.) as follows in his commentary *Sarvaṅgasundara* :—

“जूर्णः तण्डुलान्धिरौफ इषिवापये ओषधक इति प्रसिद्धः”

1. Ed. (1902, Calcutta) by Ashubodh.

2. Vide Edition of the *Aṣṭāṅgahṛdaya* by Hari Shastri Parādhar, N. S. Press, Bombay, 1938 with my English introduction on Vagbhāṭa II and his Commentators.

The variants for जोंधलक in the above line recorded by Vaidya Paradkar are :—“जोंधलक, जोंधलक, and जोंधलक.” It is clear, therefore, that in the 13th century the old word जोंधल for Jawar or Jondhla was known in the Deccan as जोंधलक and its variants recorded above. The testimony of a Bengali commentator of A.D. 1220, which equates जोंधल with जोंधलक is further confirmed by the Mahānubhāva literature of c. 1250 A.D. In fact CAKRADHARA, the founder of the Mahānubhāva Sect, was very fond of जोंधल and its preparations. In a work (in Marathi) called the लोकाचरित्र composed by Mahānubhāṭṭa, the pupil of Cakradhara, there are many references to जोंधल or Jawar.¹ I note below a few of these references from the published edition² of *Lilācaritra* :—

Part I, p. 18 —“हुरडा सोले”

Part III, p. 76 —“ना जी गावी एन्चि व पेव कादोलें:

सारिलेवि जोंधळे: अथवा परि सारिलावि भातु:”

Part IV, p. 48 —“निच (निरच) केसा गोसावीयांवि पाणिभातुं च आरोग्या:

कांही अनारिलें नाहीं: म्हणोनि जोंधळे आणवीलें”

” p. 49 —“उदीदां जोंधळेयाची तीर्थ दीवरी”

” p. 51 —“तिथिविच मात्रे (सामानत) गहुं: चले: जोंधळे: ऐसे शेते: तेपावा भवजनावा ठार उपाहार केला”

” p. 61 —“पुदां कलीसे थोड्यापीली...जोंधळेयाचे कण दोनि पाविले: ते गोसावी प्रसादु केला.....उपाधिया करवी हुरडा भाजविला”

” p. 62 —“बारी हुरडा पावविला: काया पातला: आशि: साकरपातली: गोसावीयांवि बोलगवीला: गोसावी प्रसादु केला: गोसावी अथपेयां भकजनां दीधलां: मग गोसावी हुरडा आरोगीला:”

It is clear from the above extracts that in the Deccan of the 13th century

1. My friend Prof. D. R. Bendre of the Commerce College, Poona, has brought to my notice the following references to जोंधल in a *Canarasa* work of the 10th Century A.D. :—
c. 940 A.D.—*Canto IX, Verso 84* of कण्णाल (or कण्णाल) published by Karmasak

Sahitya Parishad, Bangalore, refers to जोंधल (Jola) :—

Dialogue between कर्ण and धृष्टी “Setting aside the good deeds of the Lord (his chief पुत्रोत्तम) and being false to धर्म can one live thereafter ?” (Here जोंधल = Jawar).
Canto X, 42 (A soldier proceeding to the battle-field observes) :—“How shall I repay

जोंधल if I don't kill so many horses and elephants.” Here जोंधल = Jawar).

I am thankful to Prof. Bendre for these references.

2. *लीलाचरित्र* by H. N. Nece. Parts I and II (1936) ; Parts III and IV (1937). Nagpur. Cakradhara was contemporary of King Kanharadeva (A.D. 1247-60) and King Mahadeva (A.D. 1266-71) of Devagiri. Hemadri was the minister of kings Mahadeva and Ramacandra of Devagiri. In another Mahānubhāva work कण्णाल कण्णाल (by H. N. Nece, 1936) there are references to जोंधल on pp. 18 and 38.

the terms *होल्कु* or *होल्से* (*Holcus Sorghum*) and its preparations were current. We also note here that the present custom of roasting the grain bunches of *Sorghum* and eating them in the field or at home was also current 700 years ago and these roasted grains were known as *हुरा*, a term for these grains which has survived even to this day. The pastoral life in the Deccan has not changed very much so far as the crop of *Jondhla* and its uses are concerned. The custom of preparing *होरी* or omelets from the flour of *Jondhla* was also then current though we now prepare them from the flour of gram. This custom is worth renewing even in cities as *Jawar* is now selling at 4 seers a rupee while it was sold at 80 seers a rupee as observed by Edward Moor in A.D. 1790. In the encyclopaedic Sanskrit work called the *Manasollasa*¹ composed by king *Someśvara* or *Bhulokamalla* (A.D. 1116-1127) there is a section on *Hunting* (*दृग्यपिनी*) in which the use of a *jawar* grain-bunch (or *होल्कु* या *होल्से* "कण्डि" as we call it to-day) is prescribed for feeding the deer as follows :—

P. 282 — "कण्डिं वाचवाचस्य कृमिवाधारेण्युपात्तम्"

Kesavaśvami in his lexicon *Nānārthārṇava-saṅkṣepa* (A.D. 12th century²) mentions *वाचनाल* and *जोनाला* in the following line :—

P. 118 — "वाचवाचस्य धान्ये तु जोनाला स्तो त्रिपुलः ॥ ८११ ॥"

In a Canarese inscription³ of A.D. 1166 we find a reference to corn merchants and *jawari* as follows :—

P. 110 — "All these chief merchants not minding any tax granted to glorious God *Cennakeśava jawari* of one spoon (*Saffuga*) from each shop" (line 50-53 of the Inscription).

Canarese scholars will be easily able to record earlier references to *jawar* from literature and other sources (before A.D. 1166) and I earnestly request them to do so.

From the Deccan and *Karnāṭaka* of the 12th century we now turn to *Gujarat* in search of the history of *jawar*. We find that *Hemacandra*, the great *Ācārya* of the *Jainas* (A.D. 1089-1173⁴) who lived at *Patan* in *Gujarat* composed a lexicon of *Deśī* words called the *Deśīnamamālā* in

1. Ed. in G. O. Series, Baroda, Vol. II (1939).

2. Vide p. 118 of *Classical Sanskrit Literature* by Krishnamachariar, 1937—

"*मानसोल्लास* *वर्णन* composed in the 12th Century."

3. Vide p. 110 of *Inscriptions in Northern Karnataka and the Kolhapur State* by Prof. K. G. Kondagar, Rajaram College, Kolhapur, 1939.—Date of Inscription No. 13 in which the reference to *jawari* occurs is Saka 1088 = A.D. 1166. (Tuesday 8th July).

4. Vide my paper on *Mamājā* and *Hemacandra* (*Journal of Tanjore S. M. Library*, Vol. I, No. 1, pp. 9-13).

which we find the word “जोएणसिमा” and “जोबारो” corresponding to the modern words जोषला and जवार respectively as will be seen from the following extracts :—

Page 151 — “जोबारो जोएणसिमा ॥ ५ ॥

“जोषबाजीया जोषारी । धान्यम् । जोषारी शब्दोऽपि देस्य एव ॥ यथा —

बलजोई बजोई गणयिस्सिच्च जोषबाजीया कारणं कालं ।

कास्य वाउ हरिसा उपकुल्य जोषयाहन्ति ॥ ४२ ॥”

Hemacandra (in the 12th century) states that the word जोषारी is also a *desya* word like जोएणसिमा. If this statement is correct we have to regard both these words as dialect words current in Hemacandra's time with some antiquity behind them as Hemacandra has based his *Desinamamala* on some earlier *Deśi* lexicons now lost to us.¹

We have already seen that Madanpāla mentions the word জোড়া for *Jondhala*. We shall see later that this word is very old. In fact it is used in the earliest medical text known as *Carakasamhita*. *Cakrapāṇidatta* (A.D. 1060) a Bengali commentator explains the term “জোড়া” as equivalent to जोनार, a word current in his time in Bengal. I have found two references to “জোড়া” in the *Carakasamhita*,² which may be recorded here :—

Page 111 — *Sāstradhāna*, Chap. 21, verse 25 —

“प्रसातिका भियर्हंश्च रयामाका यथा यथा ।

जोड़ाः कोदवाहूः कुलत्वाथ कमरुकाः ॥ २५ ॥”

1. Hemacandra composed a Sanskrit lexicon called the *अभिज्ञानचिन्तामणि* in which he notes the synonymy of यमनाल (=Jawār) as follows :—

Page 475 — (Edition of *अभिज्ञानचिन्तामणि*, with a separate index volume)

भूमिकान्त (B) ४१, verse 244—

“यमनालस्तु योनलः ।

जोड़ायो देषधान्यं जोषालं बोबुण्डिका ॥ २४४ ॥”

Hemacandra writes his own commentary on the above lines as follows :—

“यथास्य इव नालस्य यमनालः ॥ ६ ॥

युते योनलः “युल” (उया ४४४)

॥ इत्येते निपात्यते ॥ २ ॥

‘जरेचि जरायो’ ज्यंते जोर्णः “जोरय्येरिलः” ॥ ४ ॥ ४ ॥ ६६ ॥

इति कस्य नत्वम्, जोर्णं इत्याह्वयो यस्य चर्वाह्वयः ॥ ३ ॥

देवधियधान्यं देषधान्यं जनाद नालमसा जोषाला वृषोदरादिनात् ॥ ५ ॥

बोजाकारं पुण्यमस्य बोबुण्डिका ॥”

2. Ed. by Nirnayadger Press, Bombay, 1922—The B. O. R. Institute Govt. MS No. 66 of 1872-73 wrongly called *चरकसंहिता* is in fact *Cakrapāṇidatta's* comm. on *चरकसंहिता*—folio 149—“जोड़ा जोनार इति व्यासः”

Page 149 — *Saṣṭhāna*, Chap. 27, verse 17 —

"विशिष्टः जूनाः दद्यात्कस्तथा पुनः"

Cakrapāṇidatta explains :—

"जूनाः जोनार इति व्यातः"—"जोनाल" is a variant in MS No. 66 of 1872-73.

In the vernacular names of *Jawār*³ given by Watts in his *Dictionary* (p. 290 of Vol. VI, part III) we find the following names which come phonetically near to जोनाल of A.D. 1060 :—(HINDI)—*Janera*; (BENGALI)—*Kasa-jonar*; (N.W.P. AND OUDH)—*junri*; (PB)—*junri*; Watt here records some other usages as follows :—

(1) BURMESE—*Pyung*; (2) *Zūrna* (= Sanskritized form of the Arabic name *Dhura*), *Yavanala*, *rakta Khurnah* (Sanskrit), (ARABIC)—*Dhūra* (*zūra*), *taam*, *jawa* (= smaller millet), *dhurat*; (EGYPT)—*Kaydi durra*; (CHINESE)—*Kao-liang*. (= tall millet).

Yadvavaprakāśa (c. 1050 A.D.) in his lexicon वैजयन्तो³ refers to *jawār* or *jonnala* as follows :—

1. *Ibid.*, p. 111—(footnote 3 explaining the term जूना in verse 25 of Chap. 21 of *Saṣṭhāna* records the following explanation of जूना as given by विशदसि a later commentator of *Caraka* :—

"जूना इत्युक्तविरुद्धा द्वावपि बोध्यं इति श्रुतिः इत्यस्य इति किं" (विशदसि).

We have already seen that Arupor Arupidatta explains the word जूना as जोन्नाल in *द्विपात्र*. The variants of this: जोन्नाल, जोन्नाल, and जोन्नाल. The variant बोध्यं mentioned by विशदसि is an addition to these variants of Arupidatta's text.

2. The Prakrit Dictionary called "*Paśa-Siddha-Sāhitya*" Calcutta. 1923-28 (p. 448) records the following usages of जूना (juṇi) :—

A.D. 1143—(i) जूनालि [Vide p. 546 of *द्विपात्र* ed. by Har Govindā, Benares. 1918-19]

C.A.D. 1090—(ii) जूनालि [Vide *सुवर्णलता* (Pariccheda I. Gāthā 7,) published by जेम्सब्रिज, Benares, 1916.]

We have already noted जोनी and जोन्नाल recorded as *Devī* words by Hemacandra. जूनी and जोनी are synonymous.

About the date of the two Jain works referred to above I note here the remarks of Winternitz, *Indian Literature*, Vol. II, Calcutta University.

Page 576—"A voluminous Prakrit poem *Suśaṅkha-Caritam* by Lakṣmaṇa Gaṇin deals with the Story of the Seventh *Tirthakara*. This work, composed in the year 1143 A.D. also contains 68 *Apabhraṃsa* verse."

Page 536—"Śrīśaṅkha-Caritam by Dhaneśvara, the pupil of Jīvaśaṅkari and Buddhishāṅkari written towards the end of the 11th century is a voluminous romantic epic in Prakrit."

3. Ed. by Gustav Oppert, 1893.

श्रुमिकाएव—वेरवाप्याय—

“—वायवाकस्तु योनकः ॥ १९ ॥

जृण्विद्यो देवधान्यं जोषाला बोधयुषिका ॥”

Hemacandra's lines in the *Abhidhanacintāmaṇi* quoted by me already are exactly identical with the above lines in the *Vaijayanti*. Evidently Hemacandra (A.D. 1089-1173) has borrowed from *Vaijayanti* (c.A.D. 1050) or from some common source.

It is clear, however, from the statements of Hemacandra and Yādvaprakāśa that the following terms were used about A.D. 1000 for modern *Jawar* or *Jondhla*—

यवनाल or यवनाल, जोनल, जृण्विद्य, देवधान्य, जोषाला, बोधयुषिका, जोषणलिका, जोषारि, मुषारि

It is for linguists to see how far Hemacandra's grammatical explanation of the synonyms of *Jawar* such as यवस्य इव नालस्य यवनाल” etc. are historically correct.

Going backwards from A.D. 1000 we find that in a *Tamil* work of the 8th century A.D. the *jawar* is referred to as *Irungu*. The modern word in *Tamil* for *jawar* is *Coḷam*. *Irungu* is mentioned in *Jivakacintāmaṇi* of the 8th century A.D.¹

Vāgbhaṭa II (8th or 9th century A.D. according to Hoernle) refers² to both जृण्वि and जृण्वि as synonyms for *jawar* as follows :—

(1) धप्रस्थान Chap. 14, verse 21.

“कुलत्यजृण्वरसामाकयधमुद्रमधुदकम् ॥ २६ ॥”

(2) निदानस्थान Chap. 7, verse 46 (This verse is taken from षट्पदसंग्रह निदानस्थान Chap. VIII).

“मुद्रकोत्र जृण्विहरोत्पणकादिभिः ॥ ४६ ॥”

I have already recorded the explanation of Aruṇadatta and Hemādri regarding the meaning of the term जृण्वि used by Vāgbhaṭa II and hence they need not be repeated here.

1. In response to my inquiry about *Tamil* reference to *jawar* my friend Rao Bahadur K.V. Rangaswami of Madras writes to me under date 16th August 1943 :—

“Mr. V.R. Ramachandra Dikshitar, M.A. whom I had consulted writes as follows :—

So far as I know *Coḷam* is a modern word.

It was known in mediaeval literature as *Irungu*. The *Saṅgham* classics do not mention it nor the *Silappadhikāram* nor the *Kural*. The earliest reference is in *Jivakacintāmaṇi*, 8th century A.D.

I am thankful to my ever obliging friends Rao Bahadur Aiyangar and Prof. Dikshitar for the above information.

2. Vide Paradhar's edition of the *Aṣṭāṅghya* already referred to in this paper.

Vagbhata I (c. A.D. 625 according to Hoernle) refers to *jawar* as "ज्वार" in the following line of अष्टांगसंह, चतुर्थस्थान Chap. 7, verse 12—
(नृणामान्तराणामन्यथाः)

"नृकोट्य ज्वारं दृग्गदोषघ्नादिभिः ॥ १२ ॥"

See निदानस्थान, Chap. 8 — "नृकोट्य ज्वारं etc."

Unfortunately the commentator इन्द्र on the अष्टांगसंह does not explain the word ज्वार in the above line.... He merely states "कषादयः". It is, however, clear that the term ज्वार was known to Vagbhata in the 7th century A.D.

In a Jain Prakrit work called the *Tiloyapatnatti*³ (*Trilokaprajñapti*) which belongs to the first stratum of the pro-canon of the Digambaras and the author of which JADIVASAKA is a revered author of antiquity we find a reference to *jawar* as जमणाल (Sanskrit यचनाल) as follows :-

Page 157—"जमणाल वल्लं त्वरी तिलजं गोधुम्मासं पइ दोहि ।

सन्वेहि सुपण्णोहि दुराहं सोहति भूमोहि ॥ १३१ ॥"

The editors identify जमणाल with "यचनाल (ज्वार)" in their Hindi translation⁴ of the above stanza, which includes जमणाल amongst the best kinds of grain like wheat etc. The *Tiloyapatnatti* is assigned to the 5th century A.D. by some scholars. At any rate this reference to जमणाल (यचनाल) is very important, recorded as it is in a Prakrit text of great antiquity, incorporating the hereditary knowledge and ancient tradition of the Jainas pertaining to Jaina cosmography, dogmatics, mythology and chronology.

I have already recorded two references to ज्वार in the *Caraka-saṁhita*,⁵ one of the earliest medical texts. According to Buddhist tradition *Caraka* was the court physician of King Kaniska⁶ who is

1. Ed. by Pt. Rāmachandra Shāstri Kinjavadekar, Chitrasahla Press, Poona, 1940, with the commentary called *वृत्तिलेख* by इन्द्र.

2. Ed. by Dr. A. N. Upadhye and Prof. H. L. Jain, Pub. by the Jain Saṁskṛiti Sāhitya Sangha, Sholapur, 1943 with Hindi Translation by Pt. Balchandra.

3. This translation reads :

"यचनाल (ज्वार) वल्ल, तुवर, तिल, जो, गेहूं, और उदद, हत्यादिक समस्त उत्तम धान्यों से युक्त भूमियों द्वारा वे नगर शोभा को प्राप्त हैं ॥ १३१ ॥"

4. Vide p. 33 of *Arya Medical Science* by Thakore Sahib of Gondal (London, 1896)—
"Some believe him (ज्वार) to have been born at Bera's 320 years B.C."—Pt. Durgashekar K. Shastri (in his *History of Ayurveda* in Gujarati, Ahmedabad, 1942, p. 87) makes 5th century A.D. as the latest limit for the chronology of early *Ayurveda Saṁhitas*. He also states that *Carakasāhita* and *Sūtrasāhita* were completed before 5th Cent. A.D. (i.e. before A.D. 400 or so).

5. Vide p. 256 of Vincent Smith's *Early History of India*, Oxford, 1914—Kaniska came to the throne "most probably in 78 A.D." Dr. Fleet thinks that Kaniska came to the throne "in 58 A.C."

assigned by some scholars to the period A.D. 125-140. Whatever be the exact date of the *Carakasamhita*, the fact of its being one of the earliest medical texts before A.D. 400 or so is acknowledged by many scholars and consequently we may regard the term "जवा" as the earliest usage of this term for jawar or jondhla so far known. As regards the other synonym for jawar viz. यवनाल which occurs in the Prakrit work of about the 5th century A.D. as "जमणाल" I have to record its usage in another earliest medical text, the मेरुसंहिता, where it appears as "यावनाल" as will be seen from the following extract :—

Page 48 of *Bhelasamhita* (ed. by Asutosh Mookerjee, Calcutta University, 1921) भोजनविधि—

‘‘हरेण्यो मधुराद्य ततिताद्य लयावके ।
कुल्ल्याद्याविशेषेण कषायमधुरा रते ॥
सर्वे तु लघुणाश्राः दिव (दोष) नोय (ः) प्रकीर्तिताः ।
आयु (५) व्याध विशेषेण दुर्बलान्ति हितानि च ॥
श्वेदः। यावनालस्य दो शरीरी शीतली स्यूती ।
युष्कं (३) विनिहि (४) तस्ती तु रष्टि चापि शरीरिणाम् ॥’’

The mention of यावनाल, and its properties along with those of other grains like मधुर, कुल्ल्य etc. in the *Bhelasamhita* indicates that यावनाल is the name of a grain known to Bhela, the pupil of आत्रेय (6th cent. B.C.)¹ Ātreya had six pupils "each of whom is reputed to have committed to writing the teaching of the master in the form of a *sāhita* or compendium." So far three of these *Samhitas* have been discovered. They are अग्निवेद संहिता, in the form of the redaction by चरक, (2) मेरुसंहिता, (ed. by Ashutosh Mookerjee) and (3) कारकसंहिता² recently published by Rajaguru Pandit Hemaraj of Nepal. If the tradition about the Ātreya school of medicine is correct we have to regard the मेरुसंहिता as earlier than the अग्निवेदसंहिता preserved in the form of चरकसंहिता and published by the N. S. Press, Bombay. There is a divergence of views about the chronology of these *Samhitas*, which go by the names of *Caraka*, *Bhela* and *Kaśyapa*. It is, however, agreed to by all scholars that they are the earliest medical treatises that have come down to us from antiquity.

Dr. Dinesh Chandra Sircar states that Arvaghoṣa is said to have been a contemporary of Kaniṣka. Arvaghoṣa's *Buddhacarita* was translated into Chinese between 444 and 421 A. D. (Vide pp. 379 and 389 of *Successors of Śaśavāhanas*. Calcutta, 1939). If the tradition about *Caraka's* connection with Kaniṣka is correct the date of *Caraka* is evidently before A.D. 400.

1. Vide prefatory Note to *Bhelasamhita* by Sir Asutosh Mookerji.

2. Published, Nirṇaya Sagar, Press, Bombay, 1938.

Starting from A.D. 1839 we have now moved backward through centuries of the history of *Jawār* (*Holcus Sorghum*) and have reached the first few centuries of the Christian era, when this grain appears to have been cultivated and used by our ancestors and when also its properties were studied and recorded by the earliest medical writers of those centuries. If this view based on the data recorded in detail in this paper is accepted we may be able to understand the significance of the following remarks of LASSEN¹ about the introduction of *jawār* into Italy in the 1st century of the Christian era :—

"Another Indian cereal *Milium* was not exported from India it is true ; but on the other hand its cultivation was introduced into Italy ten years before PLINY wrote this passage (*Periplus Mar*, Eryther p. 32). It is probably the kind of millet very common in India which botanists call *Holcus Sorghum* and the Indians *guari* or *ḡawar* in the vernacular."

As Pliny, the Roman author flourished between A.D. 23 and 79 and as there was contact of India with Rome in this century the probability of the cultivation of Indian *jawār* in Italy as suggested in the above extract cannot be ruled out in a summary way. In fact Prof. Franklin Edgerton² of the Yale University (U.S.A.) has found a reference to the city of Rome in the *Sabhaparvan* of the *Mahabharata* which he has critically edited for the B.O.R. Institute Critical Edition of this Great Epic of India.

The history of plants, especially when these plants have migrated from their original habitat to different regions of the globe, is necessarily interwoven with the history of the different people who cultivated them in remote ages of the history of the globe. I am quite incapable of getting access to the sources of the history of all these people and must confine my studies to such of these sources as are available to me easily. Even this study of the history of the *jawār* must remain only as a sketch of this history made by a shaking hand on too big a canvas stretching from 2200 B.C. to A.D. 1850. The chronology of the sources from which I have drawn my data is somewhat definite for sources later than A.D. 1000 but only relative so far as sources earlier than A.D. 1000 are concerned. However, in the present stage of our chronology we have no other recourse but to represent only the current views about them, leaving it to future scholars to solve the problems of early chronology on the strength of their own studies of the present sources and in the light of new sources, if discovered hereafter.

1. Vide Lassen's *History* (English Trans. in the *Journal of the Bihar and Orissa Research Society*, Patna, Vol. X, 1924, Page 251.)

2. Vide pp. 262-265 of the *Journal of the American Oriental Society*, Vol. 58.

About the several problems that arise out of the present collection of data bearing on the history of *Jawar* it is better to defer our judgement. We have no direct peep into remote antiquity and consequently the gleams of light that are furnished by a few documentary references are the only guides that help us to clarify the age-long history of this edible grain, which may have been cultivated in India even prior to the Aryan invasion as observed by Watts in his *Dictionary of Economic Products of India*.

The following chronological table will show at a glance the evidence collected in this paper regarding the antiquity of *Jondhla* or *jawar* :—

Chronology	Evidence J = <i>Jondhla</i> or <i>Jawar</i> (<i>Holcus Sorghum</i>)
B.C. 2200	Evidence about the existence of J furnished by an Egyptian tomb (Swanson and Laude). J (= याचनाल) mentioned in मेहसंहिता, one of the earliest medical treatises like the वरकसंहिता and कारकपसंहिता. J referred to in the Bible according to Smith (<i>History of Bible Plants</i> , p. 214).
A.D. 100—200	J (= जूणाह) Mentioned in वरकसंहिता. J (= ? an Indian Cereal <i>Milium</i>) introduced into Rome in the time of Pliny (A.D. 23—79) according to Lassen.
A.D. 200—300	J Cultivated in China, where it was probably introduced from outside.
400—500	J (= बमणाल = यचनाल) mentioned in तिलोपपत्ति of बभिवल्ल, a Jain author.
c. 625	J (= जूणाह) mentioned in अष्टांगसंग्रह of Vagbhata I.
700—800	J (= चोलम्) mentioned in the <i>Tamil</i> work जोषकवितायणि.
1050	J (= याचनाल, योनल, जूणाहय, देषधान्य, जोषाला etc.) mentioned by यादवपकाश.
8th or 9th Cent.	J (= जूणाह) mentioned in the अष्टांगसंग्रह of Vagbhata II.
A.D. 1060	J (= जूणाह = जोनार) mentioned by चक्रपाणिदत्त, a Bengali commentator of वरकसंहिता.
c. 940	J (= जोल) mentioned in <i>Canarese</i> work पम्पभारत.
1089—1173	J (= जोषारी, जोषणलिसा, याचनाल, योनल, जूणाहय, जोषाल, देषधान्य etc.) mentioned by हेमचन्द्र in देशोनाममाता and बभिवल्लवितायणि.
1090	J (= जुषारि) mentioned in a Prakrit work बुरह्मद्वारचरि.
1100—1200	J (= याचनाल, जोषाला) in नानापादोपसंहार of केशवस्वामी.
1116—1127	J [= याचनाल (कृष्ण)] mentioned by Somesvara in his मानसोद्भास.

Chronology	Evidence J = <i>Jondhla</i> or <i>Jawar</i> (<i>Holcus Sorghum</i>)
1143	J (= जुषारि) mentioned in the Prakrit work मुपासनाहचरिष.
1166	J mentioned in a <i>Canargse inscription</i> .
1220	J (= जूण = जोन्धलक in दक्षिणापथ) mentioned by Bengali author अरुणदत्त in his Comm. on अष्टाङ्गहृदय (variants of जोन्धलक are जोहलक जोमालक, जोणालक).
c. 1250	J (= जोधका, जोन्दका) mentioned in लोकाचरित्र and बरुधरप्रपाद (Mahānubhāva texts).
c. 1260	J (= जूण = याचनाल) mentioned by Hemādri in his Comm. on the अष्टाङ्गहृदय.
1374	J (= याचनाल, जूणाह, देधान्य, जमल etc.) mentioned in the मदननिषण्ड, a medical glossary by मदनपाल.
c. 1450	J (= याचनाल) described in the राजनिषण्ड of नरहरि (in Kashmir).
1541	J (जोमल) mentioned in a Marathi document along with गहू and वुरी.
1590	J grown in Khandesh (<i>Ain-i-Akhari</i>).
1624	J (जोमाला, यचनाल, जूण, जूणि) mentioned by Sadhusundaragani in his शब्दरत्नाकर.
c. 1650	J (याचनाल) described by Raghunātha Navahasta friend of Saint Ramdas in his <i>Bhojana-Kutāhala</i> .
1739	J used in the royal kitchen of Sevai Jaising of Jaipur (Rajputana).
1760	"Jouari" (reference quoted in <i>Hobson-Jobson</i>).
1784	"Jerroo" a kind of paddy in Sumatra mentioned by Marsden.
1790	Description of J by Capt. Edward Moor.
1800	"Jowarry" (<i>Hobson-Jobson</i> reference).
1813	"Juarree" (<i>Hobson-Jobson</i> reference).
1819	"Joivnree" (<i>Hobson-Jobson</i>).
1826	"Joanee" (<i>Hobson-Jobson</i>).
1839	Description of J by John Graham in his work on <i>Bombay Plants</i> .

32. The History of Maize (Makā) in India— Between A. D. 1500 and 1900*

For the last ten years I have been studying the history of Indian plants of medical and nutritive value in response to the suggestion made to me by my esteemed friend, the late Dr. Birbal Sahni, F. R. S. Several papers on this history have already been published by me in different Oriental journals and other publications. While engaged in the study of the history of Indian plants in 1948, the General Secretary of the Royal Asiatic Society of Bengal, Calcutta, wrote to me on 5th April 1948 as follows :—

"I enclose copy of a letter¹ received from the Registrar, Indian Agricultural Research Institute, New Delhi, asking for some information concerning the existence of corn (*Zea Mays*) in India long before the discovery of America by Columbus. I shall be grateful if you will kindly let me know your remarks on the subject for forwarding to the Research Institute in New Delhi".

I informed the General Secretary of the Royal Asiatic Society of Bengal that the information given to the Agronomist of Texas by Indian students about historical records proving the existence of Corn (*Zea Mays*) in India before the discovery of America by Columbus was incorrect, if not misleading, as I shall show in a special paper projected by me on the history of Maize in India, which I have been studying for the last few years.

Subsequent to the above reply I got into direct touch with the Agronomist of Texas viz. Prof. R. G. Reeves and sent to him many of my papers on the history of Indian plants. Prof. Reeves has now sent to me

* Prof. D. V. Potdar Commemoration Volume, pp. 14-25.

1. This letter dated 17th March 1948 forwarded to the Royal Asiatic Society of Bengal the following letter dated 19th August 1917 from the Agronomist, Texas Agricultural Experiment Station, Texas (U.S.A.) :—

"I have recently been talking with students from your country (India) and some of them tell me that there are historical records of the existence of Corn (*Zea Mays*) in your country long before the discovery of America by Columbus. I have been interested in the history of Corn for a number of years and would like to have more information concerning these reports. Will you please pass this inquiry along to the person who can give me some suggestions and literary reference with the most convenience. I shall thank you very much for doing me this favour."

his book¹ on Corn or Zea Mays in which he has traced the history of this plant from non-Indian sources.

I note below some points from this history for the information of readers to whom Prof. Reeves' book may not be easily available :—

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- (1) *November 5, 1492*—Two Spaniards delegated by Christopher Columbus to explore the interior of Cuba returned with a report of "a sort of grain they call Maiz which was well tasted bak'd dry'd and made into flour." Thus was introduced to the white man Maize, a plant of immense food value.
- (2) Today Maize is grown in every state of the U.S.A. and its crop is maturing somewhere in the world every month of the year. It grows in Canada, Russia, Caspian Plain, Peruvian Andes, Hindustan. It is grown on more than 200 million acres of land and produces an annual crop exceeding four billion bushels.
- (3) Maize has a diversity of forms. The Russians have collected more than 8000 varieties. There are, however, five main types—dent, flint, flour, sweet and pop.

1. *The Origin of Indian Corn and its Relations* by P. C. Mangelsdorf and R. G. Reeves. Bulletin No 574 of the Texas Agricultural Experiment Station, Texas (U. S. A.), May 1939, Page 315. At the end of this volume a list of books cited is given. The following items from this list may be of interest to the readers of this paper :—

- (1) Anonymous, 1938. *Maize and the Mryo*. Carnegie Inst. of Washington News Service, Bul. IV : 219-224.
- (2) Baillon, H., 1894 *Histoire des Plantes*. Paris.
- (3) Bement, a., 1853. *History of Indian Corn*. Trans. N. Y. Agr. Soc. D : 336.
- (4) Berr-Davy, 1914. *Maize, its History, cultivation, handling and uses*. New York, Bombay and Calcutta.
- (5) Candolle, A. de 1914. *Origin of Cultivated Plants*. New York. 387-397.
- (6) Collins G. N. 1912. *Origins of Maize*. Jour. Wash. Acad. Sci. 2 : 520-30.
- (7) Laufer, B. 1907. *The Introduction of Maize into Eastern Asia*. Proc. 15th Int. Congr. Americanists I : 223-257.
- (8) Vavilov, N. I. 1926 b. *The Origin of Cultivated Plants*. Proc. Int. Congr. Pl. Sci. I : 167-169.
- (9) Weather, W., 1923. *The Story of the Maize Plant*. Chicago.
- (10) ————Do———1936. *The Origin of the Maize Plant and Maize Culture in Ancient America*. Univ. N. Mex. Bul. No. 296 : 11-18.
- (11) Winters, c., 1916. *Aboriginal Maize Culture as a typical Culture Complex*. American Jour. Soc. 21.

- (4) *Maize* would soon disappear from the face of the earth, if deprived of man's protection.
- (5) Ancient civilizations of Peru, Central America, and Mexico were based upon the culture of *Maize*.
- (6) There is no historical evidence pertaining to *Maize* previous to A. D. 1511. *Maize* is not mentioned in the *Bible* and there is no Hebrew or Sanskrit term for it. The Greek writers discoursed on many crop plants, among which *Maize* is not mentioned. The Greeks have no word for it. There are no Egyptian representations of the plant or ear.
- (7) Extensive search of the pre-Columbian Chinese literature reveals no evidence that the Chinese scholars were acquainted with it. The records left by the ancient Americans — the Incas, Mayas, and Aztecs — tell us nothing of the origin of *Maize*, though they do point out its importance in the economic, social, and religious life.
- (8) There are no fossil remains of *Maize*. A specimen from Peru believed to be a fossil has been proved to be a clay rattle or perhaps a toy for the amusement of some prehistoric infant.
- (9) There is absence of clear-cut evidence about the *Maize* from history, archæology, geology and paleobotany. We must, therefore, study the plant itself and its relatives.

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- (10) The first printed reference to *Maize* and its botanical description appears in "*Decades*" by Peter Martyre published in A. D. 1511. The first part of the first "*Decade*" which refers to *Maize* was written by November 1493 within one year after the discovery of America by Columbus. An English Translation of the "*Decades*" by Richard Eden was published in A.D. 1555.
- (11) The first reference to *Maize* in a botanical publication appeared in A.D. 1532 in the "*Stirpium*" by Bock. Ruel mentions the plant in 1536.
- (12) The first artistic and accurate illustration is given by Leonard Fuchs in his herbal of A.D. 1542 (Figures 10 and 11). Fuchs called it *Turcicum frumentum* or *Türkisch Corn*.
- (13) In A. D. 1493 Columbus took *Maize* to Europe on his return from America. He gave it the name *Maize* which is a modification of the Arawak name *māhiz* or *Marisi*. Subsequently

a profusion of names for this plant became current e.g. the following :—

Panicum (by *Peter Martyre* in A.D. 1493).

Walschkorn (by *Boch*, 1539).

Turcicum frumentum (by *Fuchs*, 1542).

Milium indicum (by *Dodoens*, 1552) and in 1566 *Triticum frumentum*.

Frumentum indicum *Mays dictum* (by *C. Bauhin*, 1623).

Frumentum asiaticum (by *Gerard*. 1636).

Triticum indicum (by *J. Bauhin* 1650).

Zea Mays (by *Linnaeus*, 1737).

- (14) *Sturtevant* (1879) reviewed the literature regarding the eastern and western origin of the Maize,

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- (15) *Figure 13* — Reproduction of *Parkinson's* (1640) description of Maize.

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- (16) The earliest written record of Maize appears in *Popol Vuh*, the sacred book of the Quiché Indians of Western Guatemala, whose records go back to the 8th Century. This book records a legend of four barbarians who guided the Quichés to "A most excellent land, so full of good things, where the white and yellow Maize did abound."

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- (17) Maize is not mentioned in any Old World treatise prior to A.D. 1492. It is not mentioned in the *Bible*, *Rgveda* and other Vedas (no Sanskrit or Hebrew word for Maize). There are no Egyptian representations of Maize. *Pliny* mentions *Zea* as growing in Egypt but *Zea* was a kind of wheat according to early Greek botanists. No authentic specimens of Maize grain or ear have been discovered in Egypt, Assyria or Babylonia.
- (18) The specimen of Maize found by *Rifaud* in a tomb at Thebes is now conceded to have been the work of an impostor. Similarly the Charter of *Incisa* of A.D. 1204 according to which seeds of Maize were brought from Anatolia by the Crusaders has been shown to be a fabrication (Cf. *East*, 1913).
- (19) The Portuguese voyagers to Africa prior to A. D. 1492 never encountered Maize.
- (20) *Ortus Sanitatus* (A. D. 1491) contains no reference to Maize.

- (21) Li Shih-Chen, the greatest Chinese authority on natural history refers to Maize in his *Pen ts 'ao kang mu*. Bonafous (1836) supposed that this book was written in the 16th Century. De Candolle (1855) and later writers have shown that this treatise was probably written at a much later date than that supposed by Bonafous.

Page 36 —

- (22) Columbus in a letter to Ferdinand and Isabella dated 30th May 1498 writes of the use of Maize in the New World and in another letter, speaking of his brother states: "During a journey in the interior he found a dense population entirely agricultural and at one place passed through eighteen miles of corn-fields."
- (23) Within one generation Maize was known over most of Europe. Not later than A. D. 1540 Maize reached China from the west through Tibet from India, to which the Spanish or Portuguese traders had carried it in the previous generation. The first reference to Maize in Chinese literature is assigned to A. D. 1573 by Goodrich.

Page 38 —

- (24) It is now generally agreed that Maize was confined to America before the discovery.

Pages 39-46 —

- (25) Evidence of Archæology and Ethnology proving the great Antiquity of Maize in America.

It now remains for me to record the results of my study based mainly on Indian sources but supplemented by information from the non-Indian sources available to me so far.

(1) G. Renard in his book "*Life and Work in Pre-historic Times*" (London, 1929) makes some remarks on the beginnings of agriculture in pre-historic times. In this connection he makes the following remarks on the Asiatic origin of Corn (Maize) :—

Page 127 — Corn which was the conquering grain in nearer Asia, in Egypt,¹ and all over Europe seems to be a native of the first-named

1. A. Lucas in his book on "*Ancient Egyptian Materials and Industries*" (3rd Edition, 1945) p. 61 (foot-note 2) definitely mentions maize as "*a modern importation into Egypt*." This opinion of a scholar who has made a thorough study of ancient Egyptian materials discovered in the ancient tombs of Egypt contradicts the statement of G. Renard that maize was found in the oldest Egyptian tombs.

country (i. e. Asia.) It has been found in a wild state¹ near Mount Hermon in the North of Palestine. How was it cultivated? We do not know. *We find it in the oldest Egyptian tombs. We find it in the ruins of the lacustrine cities besides rye, barley, buckwheat and millet, the last of which perhaps disputed with it for sovereignty for considerable time.*"

Page 130 — "Corn and rice have crossed the seas to conquer America. In revenge America sent to Europe maize, which in the beginning, forgetful of its origin, she called *Turkish corn*, and with the tomato, the sweet potato etc."

(2) E. J. W. Macfarlane in his "*American Indians' Gifts*" (London) makes the following remarks² on Maize :-

"*Maize or Indian Corn* was the staple grain of the ancient Americans. Unlike wheat, rice, barley, and other old world Cereals, *Maize has no wild relatives* and would soon become extinct outside of cultivation. There is one large Mexican grass called Teosinte which will cross with Maize with difficulty and gives sterile hybrids. A study of the Chromosomes of these hybridsshow that *Maize and Teosinte sprang long ago from a common stock*. The genetics and botany of Indian Corn show that it has been in cultivation for thousands of years. In fact some scientists believe that it may be the most ancient of all cereals.....Indian Corn which supported the ancient American Civilizations is now a staple diet for the hardy hill people in parts of the Himalayas. These folk have no inkling that they are beholden for their food to the ingenuity of Mayas and Incas of long ago."

(3) One of the earliest figures of Maize in a European book is reproduced by Howard S. Reed in his *History of Plant Sciences* (page 67) Waltham, Mass. U. S. A. (1942), Figure 10. This figure is taken from the book *New Kreüterbuch* (A. D. 1543) by a medical botanist Leonard Fuchs (A. D. 1501-1566) of Tübingen University. Fuchs wrote a work on plants called *De Historia Stirpium* containing pictures of 511 plants. He believed in the supreme authority of Dioscorides. He describes Maize as *Turcicum frumentum* (Türkisch Korn).

(4) Speaking of Herbalists in the Orient, Howard S. Reed (p. 76 of

1. Attempts to prove the native home of a plant in a particular region by the fact of its growing in such a region in a wild state in modern times have often misled botanists about its true home.

2. These remarks were sent to me by Mr. S. L. Narasimha Rao, B. A., L. T. of Cocanada through my friend Prof. E. V. Viraraghavacharya of the P. R. College of this place. I am thankful to both these friends for their interest in my present inquiry.

Plant Sciences) refers to Li Shi Chen's herbal (A. D. 1590). This book contains an illustration and a notice of Maize. At this time Maize had become an important food plant in parts of China. Reed observes that the assumption that maize may have been introduced into China in pre-Columbian times is disproved by the absence of any notice of this Cereal from all Chinese herbals prior to the discovery of America. "The Augustinian monk Martin de Herrada spent three months in China in A. D. 1575. He published his 'History of the Great and Mighty Kingdom of China' (Rome, 1585). Herrada mentions wheat, barley, millet and Maize as cultivated in China. The mention of Maize is important because it shows that the Spaniards who took it to Philipines at an early date were instrumental in introducing it into China. (Ibid, p. 79). Reed informs us further (p. 21) that "Europeans became acquainted with Maize after the expedition of Columbus to Cuba in 1492, who found it cultivated there by Indians." The home of the Maize was Peru but the exact original home is unknown (p. 22) though Maize was brought into cultivation from stone age (p. 23).

(5) The University of Bombay possesses a manuscript of an anonymous *Nighanfu* (a glossary of medical and botanical terms) in the Bhadkamkar MSS collection (No 12). The *Nighanfu* appears to be later than A. D. 1700. It mentions *Makha* (Maize) among minor cereals (*upadhanyas*) in the following extract :—

Folio 6^b —

“अथ उपधाण्यानि आह”

यावानलः ॥

मेदो मक्का, यवानाजो महान् बल्यो दुर्जरो वातपित्तहृन् ॥

कृत्यः संतर्पणो बालयिषो मक्का लघुलघुः ॥१॥”

We learn from the above extract that *Makha* (Maize) is a variety of *yavanala* (wrongly written in the extract as *yaavanala* and *yavanala*). It is called “महान् यावानल” i.e. a bigger kind of *yavanala* (*Holcus Sorghum*) or *Jondhla*¹ or *Jawar*. It is tasteful, strengthgiving, dear to children etc.

(6) Maize is called *Maka* in Marathi. My friend Mr. S. L.

1. Vide my paper on the History of *Jondhla* (*Holcus Sorghum*) in the B. C. Law Volume, Part I, pp. 142—158—(1944).

I have proved the history of *Jondhla* or *yawanala* for about 2000 years. The *Maize* plant looks like the *Jondhla* plant but the seeds of the *Maize* are bigger than those of *Jondhla*, hence the term “महान् यावानल” for Maize.

Narasimha Rao of Cocanada has sent to me the following list of words for *Maize* in a communication dated 29-3-1945 :—

Eng.—*Maize* ; Indian Corn.

Sanskrit—*Yavanāla*.

Hind.—*Makka*.

Ben.—*Buththe*, *Bhutta* and *Makāi*.

Burm.—*Pysungboo*.

Duk. and Hind.—*Mukka jauri*.

Mah.—*Makaibonda*.

Tam.—*Mukka-Cholam*.

Telugu—*Mokka-Jonnaalu*.

Mal.—*Jagung*.

Can.—*Bottah*.

Cing.—*Munwairingu*.

I leave it to the students of historical linguistics to explain how and when the above-mentioned vernacular¹ terms for *Maize* became current in India and Burma. In particular it would be useful to study historically the terms : *Maka*, *Makka*, *Mukka*, *Makai*, and *Mokka* in the above list.

(7) In the Marathi Encyclopaedia called the *Jñānakōśa* by S. V. Ketkar (Vol. XVIII p. 1) we are informed that the native habitat of *Maka* (Maize) is America. Possibly the Portuguese brought *Maize* to India. It must have taken about 100 years to cultivate in India different varieties of *Maize* to suit different climates in the different parts of India. On p. 87, *Maka* is mentioned as one of the *Upadhānyas* or minor cereals.

(8) Carl Whiting Bishop in his "*Origin of far Eastern Civilizations: A Brief Hand-Book*" (Smithsonian Report, 1943, pages 463-512—publication 3758, Washington) makes the following remarks about

1. In reply to a query from me about references to *Maize* in the datable old Gujarati literature Prof. B. J. Sandanara of Ahmedabad wrote to me on 24-10-1949 as follows :—

"I have been studying old Gujarati literature for the last 18 years but I am not aware of a reference to *Maize*. After I received your letter I just peeped into two unpublished old Gujarati works of the 17th Century, which mention hundreds of varieties of cooked preparations but even there I did not find the mention of any preparation of *Maize*. This does not, however, exhaust the possibility of finding references to *Maize* because *Maize* was and still is the staple food of the village population in the Pancha Mahals, Sabarkantha and several other districts of Gujarat. The fact that *Maize* was considered the food of the ruralities may probably account for the paucity of its references in literature."

Maize, while dealing with the migrations of Tibeto-Burman peoples to Western China 1000 years before our Era in the upper Yangtze basin (under the Chou Dynasty):—

"In extreme Western China the local culture also contained elements from Northern India. Similarly culture traits passing through the region traversed by the now famous Burma Road have gone on diffusing themselves from pre-historic times right down to the present day. To take a fairly recent example of this, *Maize*, or Indian Corn, an American plant brought by the Portuguese to India during the sixteenth century lost little time reaching China by this route. And the vital importance of the Burma Road to China today is well known to all."

(9) The cultivation of *Maize* in the Deccan about A. D. 1700 is proved by document No. 283 dated Śaka 1629 (Āṣāḍha, Vadya 8) = A. D. 1707 in the *Sources of Marāṭhā History*, Khanda 20 (page 413) published by the historian V. K. Rajawade. In this document (*mahajar*) the following extracts refer to the cutting and looting of *Maize (Maka)* crop and other crops from the fields of farmers:—

Page 413 —

“मौजे लावणुवा लिंगोजी पाटोल
याची मका राळा व सेत कापून कापून
नेले, खराबी जाली—कलम”

“नरसोजी पाटोल कातर कटाक
याच्या मळ्यातून राळा व नागची व
मका चोराभी कापून गेला.”

Another undated document No. 175 (pertaining to the Chitrāva family of Wai in the Satara District) mentions “मकेची कणसे” (bunches or ears of maize seeds) — p. 232 (*ibid*).

(10) The cultivation of *Maize (Maka)* in the Deccan in the 17th Century is proved by a list of octroi and tolls (बकातोचे दर) on food produce published by Sardar G. N. Mujumdar in the *B. I. S. Mandal Quarterly* Vol. XX p. 160. In this list we get the following references to bunches or ears of *Maize seeds (मकेची कणसे)*:—

—“मकेचे कणसे”

—“२३ प्रती मकेची कणसे कणसे व सरकारी बगेर दर”

This list is not dated but it is said to belong to Shivji's times (A. D. 1630—1680).

(11) In a MS of a medical work called the *Vaidyāvataṃsa* (No. 601 of 1899—1915) in the Govt. MSS Library at the B. O. R. Institute we get the following reference to *Makka (Maize)*:—

Folio 12—

“मक्याचे कणित गुणाः—

याचनालो महान् बल्यो दुर्बरो बातपित्तहृत् ।

हृद्यः संतर्पणो बालभियो मक्का सद्गुणः ॥१२०॥”

This verse is identical with the verse about *Makka* recorded already by me from the anonymous *Nighaṇṭu* (MS in the Bhadkamkar Collection of the University of Bombay).

The author of the *Vaidyavataṃsa* viz. Lolimbarāja was a native of Junnar (Poona District of the Bombay Presidency) who flourished between c. A. D. 1575 and 1620 (Vide my paper on *Lolimbaraja and His Works in Indian Culture* (1941). Vol. VII, pages 327—333 and 447—456).

(12) The verse about the properties of *Makka* or *Maize* viz. *वाचनालो महान् बल्यो.....समुद्रवाः* is also found in a work on dietetics called *Bhojanakutāhala* by Raghunātha Gaṇeśa Navahasta who was an intimate friend of Saint Rāmadāsa of Mahārāṣṭra (A. D. 1608—1682) and who flourished between c. A. D. 1640 and 1710 as I have proved in my papers¹ on this author and his works. In the first *Pariccheda* of the *Bhojanakutāhala* (MS No. 594 of 1899—1915) we get the above verse as follows on folio 5 —

“वाचनालो महान् बल्यो दुर्जरो वातपित्तहन् ।

वयः संतर्पणो वातग्नियो मक्का समुद्रवाः ॥

॥ मक्का ॥”

A ms of the 1st *Pariccheda* of the *Bhojanakutāhala* belonging to *Samji Nayak Puṇḍe* (C. A. D. 1650—1685) is available in the MSS collection of the late Rājavidya Shankarrao Jagtap of Kolhapur. In this contemporary MS we get the above verse about *Makka* (Maize) as follows:—

folio 5 —

“वाचनालो महान् बल्यो दुर्जरो वातपित्तहन् ।

५.

॥ मक्का ॥

The above reference clearly proves that the term *मक्का* for Maize had become current in the Deccan in the middle of the 17th century, if not many years earlier.

(13) The Marathi Poet Rāmjoṣī (A. D. 1762—1812)² has given a description of a famine at the close of the Peshwa period (A. D. 1775—1800). In this description he refers to the high prices of food materials prevalent during the famine. A fragment of a bunch of Maize seeds

1. Vide *Journal of the Bombay University* (1941) N. S. Vol. X, Pt. 2, pp. 132—140 & *Annals* (B.O. R. I.), Vol. XXII (1942), pp. 254—263; *Journal of Tanjore S.M. Library* (1942), Vol. III, No. 1, pp. 1—12; *Journal of Bombay University* N. S. Vol. XIII, Part 2 (Sept. 1944), pp. 40—45; *Journal of S. V. Ori. Institute Tirupati* (1944), Vol. V, No. 2, pp. 51—58.

2. Vide pp. 697—698 of *Madhyajugina Caritra-kora* by S. Chit Rao Shastri, Poona, 1937.

was sold for one pice ("पैशास मरुयाचा कर एक मोळा") — see page 463 of *Maharashtra Sarasvata* or History of Marathi Literature by Bhawe.

(14) Buchanan in his *Patna-Gaya Report (1811-1812)*, Vol. II (Published by Bihar and Orissa Research Society, Patna) refers to the cultivation of Maize in Bihar and its use as food in the following extracts :—

Page 498 — "near the Ganges maize has been introduced in its (Maruya's) stead and it is to be regretted that the practice has not yet extended into the interior as the produce of Maize is larger, and there can be no doubt, that the grain is better although as yet the natives give a higher price to *maruya*. This grain is chiefly used in unleavened cakes but is occasionally used into unboiled puddings. The straw is preserved for fodder. Next to *maruya*, maize is the culmiferous grain most common in these districts but as yet it is confined almost entirely to the banks of the Ganges. The stems both green and ripe are given to cattle, but the former only are thought good. The natives are very fond of the grain, when quite young, parched in the cob."

Page 670 — *Exports and Imports*.

"The maize and Janera come from Tirhut and Sarun and are sent mostly towards Benares."

Page 636 — *Common Artists*.

"Those who parch¹⁰ pulse and maize are called *Bharbhuna* or *Chabena furosh* and are much employed. They are all women many of them however young, and generally sit in the streets with a little fire-place parching for all the people in the neighbourhood and receiving a little of the grain from each. They may get in Patna 2 *payasas* a day but in other places they make less."

(15) Raghunatha Indrajī alias Katābhāt in his *Nighāṣasamgraha* (Junagad, 1893) records the following verses¹¹ about Maize :—

10. Among the grains used for parching by ancient Indians Maize is not mentioned (Vide my article on the *Use of fried grains* etc. in the *Annals* (B. O. R. Institute, Poona) Vol. XXIX pp. 43-63 (1949).

11. The source of these verses is not mentioned by Katābhāt. The verses tell us that Maize has properties similar to those of *yavenata* (*Holcus Sorghum*) "यवनतानम्: पुनः— compare the description of Maize as 'मल्लु वारुणा' (bigger variety of *yavenata*) given by the works (1) *Vaidyavatsarsha* of Lohitambāja and (2) *Bhujamuktavahaka* of Raghunātha Gopāra Navabasth.

Page 580 —

“अथ मकारानामनुवृत्तः ५०३
मकारस्य महाकायः कटिजः कांठजः स्मृतः ।
शिक्षातः स्फुटतस्य बाधनास-समो गुणः ॥
॥ गुणः ॥ महाकायस्तुलितः वातलः कफपित्तहृत् ।
विट्मज्जनको रुधः कोमलो हविर्पुष्टिकृत् ॥”

The names¹² for *Maize* recorded by Katābhat are as follows :—

- (1) *Sanskrit*—महाकायः and कटिधानम्,
- (2) *Gujarati*—मकार,
- (3) *Marathi*—मुका,
- (4) *Hindustani*—भुग,
- (5) *Persian*—बाजरो,
- (6) *Varga*—मामिनसो,
- (7) *English*—Indian Corn ; Maize.
- (8) *Latin*—Zia-Maize.
- (9) *Tailangi*—जनपदत्त.

The foregoing notes on the history of *Maize* in India, Europe, and America confirm the opinion of Professors Reeves and Mangelsdorf that *Maize* was unknown to the old world before the discovery of America by Columbus in A. D. 1492. The evidence collected by me from Indian sources ranges from c. A. D. 1575 to 1900. It is worth while investigating and recording some evidence about the importation and cultivation of *Maize* in India between A. D. 1500 and 1600. It is believed that the Spanish or Portuguese traders took *Maize* to India from Europe sometime before A. D. 1540. This belief gets support from the references to *Maize* by Lolimbarāja and Raghunātha Gaṇeśa Navahasta, who lived (between c. A. D. 1575 and 1700) in the districts of Poona and Satara respectively. After the Portuguese advent in A. D. 1498 many foreign articles of commerce found their way to these districts of the Deccan. *Maize* must have been one of these articles like the *chillies*, *tobacco*, *guava*, *custard-apple*, *pine-apple* etc. which entered Indian agriculture and horticulture at this time and enriched Indian diet and cookery to such an extent that many of us hardly know that they are foreign importations.

12. The history of these names for *Maize* should be studied by linguists. Like the herbalists of Europe and China Indian authors of medical *Nighaṇṭus* (Glossaries) tried to make their works up to date by adding all new acquisitions to the field of Indian agriculture and horticulture like the *maize*, *guava* etc.

33. Some notes on the History of the Fig (*Ficus Carica*) from Foreign and Indian Sources*

According to the history of the Fig (*Ficus Carica*) recorded in the *Encyclopaedia Britannica*,¹ it was probably one of the earliest objects of cultivation. There are frequent allusions to it in the Hebrew scriptures. According to Herodotus it may have been unknown to the Persians in the days of the First Cyrus. Pliny mentions varieties of figs and the plant played an important part in Latin myths. This history of the fig testifies to the high value set upon the fruit by the nations of antiquity but it says nothing about its early existence in India or its importation to the Indian provinces known to the Greeks and Romans.

According to Dr. AITCHISON² the Fig or *Ficus Carica* was "probably a native of Afghanistan and Persia"³ and it is indigenous in the Badghis country and Eastern Persia. According to DE CANDOLLE⁴ "the pre-

* *New Indian Antiquary*, Vol. IV (1941), pp. 125-136.

1. Vide p. 228 of Vol. IX of the Fourteenth Edn. 1920. "From the ease with which the nutritious fruit can be preserved it was probably one of the earliest objects of cultivation..... antiquity." I may note here the points in the para. noted above :—

(1) Fig must have spread in remote ages over Aegae and Levant :

(2) May have been unknown to Persians in the days of the First Cyrus according to a passage in Herodotus ;

(3) Greeks received it from Caria (hence the name *Ficus Carica*) ;

(4) Fig, the chief article of sustenance for the Greeks—laws to regulate their exportation—Attic Figs celebrated throughout the East—improved under Hellenic Culture ;

(5) Figs were used by the Spartans at their public tables ;

(6) Figs were used as food for the slaves in Rome ;

(7) Fig was held sacred to Bacchus—employed also in religious ceremonies—

2. Vide p. 347 of WATT : *Dictionary of Economic Products of India*, Vol. III (Calcutta and London, 1890). WATT records the vernacular names of the Fig :—*Angir* (Hindi) ; *Angir* (Beng.) ; *Kimri*, *fagu*, *faguri*, *faguri* (PB) ; *Angir* (Bomb.) ; *Angir* (Guz.) ; *Anjira* or *Angjiri* (Kas.) ; *Tie-thie* (Burm.) ; *Angira* (Sass.) ; *Ten* (Arab) ; *Anjir* (Pers). Dealing with the HABITAT of the Fig he states that it is cultivated in many parts of India : North West Provinces, Punjab, Western Himalayas, Sind, Baluchistan, Bombay, Madras, Burma, Andaman Islands etc.

3. According to a passage in Herodotus the Figs seem to have been unknown in the days of the First Cyrus (B.C. 559) as stated in the *Encyclopaedia Britannica*. Herodotus the Greek historian and the father of history was born in a. c. 484 at Halicarnassus, a Doric Colony in Caria.—Vide p. 260 of *Smaller Classical Dictionary*, Ed. by E. H. BLAKENEY (London, 1913). Cyrus was killed in 529 B.C. (p. 178 of *Class. Dictionary*).

4. *Ibid.*, p. 348.

historic area of the Fig tree covered the middle and Southern part of the Mediterranean basin from Syria to Canaries." He further mentions the fact that "leaves and even fruits of the wild *Ficus Carica* with teeth of *Elephas premitenus*, and leaves of plants, of which some no longer exist, and others like *Laurus Canariensis* which have survived in the Canaries" were found by PLANCHON in the quaternary tufa of Montpellier, and by DE SAPOTRA in those of Aigales near Marseilles and in the quaternary strata of La Celle near Paris. WATT records the use of the Fig in Medicine.⁵ Alexander FAULKNER refers to Figs in his *Dictionary of Commercial Terms*⁶ published in Bombay in 1856 but records no historical information in his note. Prof. H. P. PARANJPE⁷ in his recent book on the cultivation of fruits states that Southern Arabia is the original home of the Fig. He further states that there are many varieties of the wild Fig in India but the Fig used for eating was unknown in India up to the 14th Century A. D.⁸

According to the recently published *Marathi Dictionary*⁹ dried figs are said to be imported into India from Arabia. The usage of the word *Anjir* recorded by this Dictionary is from a Sanskrit medical work the *Yogaratanakara*¹⁰ which according to my evidence was composed in Mahārāṣṭra

5. *Ibid.* pp. 349—The dried fruit of the Fig is demulcent, emollient, nutritive and laxative. It is however, rarely employed medicinally.—Sometimes used for relieving constipation—used also as poultice to effect suppuration—pulp of figs mixed with vinegar and sugar, useful in bronchitic affections in children—dry Fig contains 60 to 70 percent of grape and unripe fruit contains starch—Figs are prescribed in consumptive cases—The Arabians place figs in their *Mohajats* or *Aphrodites* and *Musijat* or *Suppurantia*—Smyrna figs are deemed the best.

6. Page 56—The vernacular and other names of Fig as recorded by FAULKNER are :—(Arab)—*Tam*; (Gujarati and Hindustani)—*Anjaer*; (Persian)—*Anjeer*; (Portuguese)—*Figos*; (Sanskrit)—*Udumvara*; (Tam.)—*Sinnu attia pullum*. (Tel.)—*Mudipondoo*; (Cingalese)—*Rata Afrika*; "This fruit of a small tree (*Ficus Carica*) indigenous to the temperate parts of Asia and now cultivated in the fertile islands of the Mediterranean, in Spain, Italy, France and Greece. An inferior description of dried Figs are largely imported into Bombay from the Persian Gulf."

7. पञ्चमहा, Poona, 1930, pp. 191-205.

8. *Ibid.* p. 191—"हिंदुस्तान तथा अरब देशों में ही लाल फल की फलियाँ उत्पन्न होती हैं।" As no authority is cited for this statement, I am unable to assess its exact historical value.

9. *Sabdaratna*, ed. by Y. R. DATE and C. G. KARVE, p. 517.

"अंजिर, अंजो—योगरत्नाकर, १, ५२; बनीयधि—गुणादर्प १, १४ [सं. का. अंजो] अंजिरो—पेय्यो ("सरसाधिलि अंजिरो"—कन्याकण्ठ by कन्याकण्ठ, ५६, १२८)

10. Published in the *Anandarama Sanskrit Series*, Poona, 1900, pp. 13-17—

अथ कान्धादिकृत कन्याकण्ठः

"गुल्फागुल्फाकरसयोगेण पीतलं च
रत्नेष्वात्मवाचकरवाग्निमयिनकम्, [अथ]"

between A. D. 1650 and 1720¹¹ or so. This work states the properties of the fruit under a section dealing with cereals, fruits, roots and vegetables but it quotes no earlier authoritative medical work for its statement.

Verthema is his *Travels*¹² (1502-1508 A. D.) states that he visited "Batha Cala" on 16th November 1504. In describing this city which is "subject to the King of Narasinga" (Vijayanagar Empire) Verthema observes :—

Page 49 — "We begin here to find nuts and FIGS after the manner of Calicut.....In this country no grain, barley or vegetables are produced but other most excellent fruits usual in India."
"Batha Cala" has been identified not with Bharkal but with Sadashivgarh within Karwar Head close to Anjediva Island. As this city was on the west coast the FIGS seen by Verthema in 1504 may have been imported dried figs (p. liii).

Figs and guavas appear to have been current at Poona about A.D. 1730 and A. D. 1789.¹³ Baber in his *Memoirs* about 1525 A.D. refers to the fig.¹⁴ In the *Munta-Khabu-i-Tawarikh*¹⁵ "*Figs of Paradise*" are mentioned. Battuta in his *Travels* (C. A. D. 1326) refers to figs of Palestine and Syria.¹⁶ According to Tbakore Saheb of Gondal the FIG was newly added to the Indian *Materia Medica* by Raja Madanapala in his work called the *Madana-vinoda*¹⁷ which was composed in A. D. 1374 and not after

11. My paper on the *Date of the Yogarainakara* was read before the Bharata Udhana Sam. Mandal, Poona in June 1940. It will appear after sometime. The Anandashrama, Poona, has published 2 editions of this work, one in 1888 and other in 1930. There is also a Mysore Edition of the work, published in 1899.

12. Argonaut Press, London, 1528 (copy No. 486) p. 49.

13. Vide pp. 7 and 6 of पेशवांचे सासणे by N. G. CHAPMAN, Poona, 1937 — "दंड" and 'पेश' are referred to in the extracts from documents recorded by Mr. CHAPMAN.

Vide also Letter No. 76 (*Peshwa Daftar Selection No. 9*) from Kashibai to her son Nana Saheb Peshwa. This letter was written between A. D. 1720 and 1740 and refers to Figs and Guavas as follows :—

"उम्दाकारणी फंजीर सुमार ६ नव पाठविले आहेत हे येथे सुद्धाच बंजीराची कायरो मसरो हरी लेहान पाठविली. येथून येथे बहुत पाठवीत जाऊन..." "उम्दास येथे येऊ मिळत जमिने (स) दोणे बहुत मालाच पाठवीत जाणे." These references to उम्दा and फं seem to suggest that these fruits were articles of luxury at the Poona Court about A.D. 1730 and not so common as we find them to-day in the Poona market.

14. *Memoirs of Baber* (Edited by ERSKINE, 1826, p. 318—Baber referring to a "yellowish blue monkey from some islands" states that "its colour is somewhat like the colour of the FIG" Page 326 — "It (Guler) resembles the FIG."

15. Vol. II (Translated by W. H. LEWIS) p. 360.

16. *Broadway Travellers*, Edited by GILES, 1929, p. 58. "From Tyre I went on to Sidon (Sidon) a pleasant town on the coast and rich in fruit; it exports FIGS, raisins, and olive oil to Cairo."

17. Vide p. 120 of *Arya Medical Science*, London, 1880.

Bhavamitra's *Bhāvaprakāśa* as stated by the Thakore Sahzb.¹⁸ I have examined the MSS¹⁹ of *Madanavinoda Nigraṇṭhu* of Madanapala of the Tankā race and find that they contain verses describing the properties of खंजीर or Fig, which may be recorded here :—

MS No. 110 of 1873-74, folio 21 (फलवर्गः षष्ठः)

“खंजीरं मंजुलं मेहं काकोटुंवरिका कलं ।
खंजीरं शीतलं स्वादु गुरुपित्ताश्रयालजित् ॥ १ ॥
तस्मादल्पगुणं शैत्यं खंजीरं लघु तद्गुणैः ॥ २ ॥
खंजीरं नाम लोके” etc.

MS No. 459 of 1895-98, Folio 48 (षष्ठो वर्गः)—A.D. 1616.

“खंजीरं मंजुलं मेहं काकोटुंवरिका कलं ।
खंजीरं शीतलं स्वादु गुरुपित्ताश्रयालजित् ॥
तस्मादल्पगुणं शैत्यं खंजीरं लघु तद्गुणैः ॥ खंजीरं ॥”²⁰

MS No. 929 of 1884-87—(Folio 28)—A.D. 1705.

“खंजीरं मंजुलं मेहं काकोटुंवरिका कलं ।
खंजीरं शीतलं स्वादु गुरुपित्ताश्रयालजित् ॥ ६२ ॥
खंजीरः शीतलं स्वादु गुरुपित्ताश्रयालजित् ॥ खंजीरं ॥”

18. *Bhāvaprakāśa* was composed about A. D. 1550 as stated by Thakore Sahab on p. 36 of *Arjun Medical Science*, while *Madanavinoda* was composed in A. D. 1374. (This date is recorded in the work itself, see Chronogram on folio 43 of B. O. R. Institute MS No. 110 of 1873-74). Thakore Sahab's statement “Bhāva Mir'ra is followed by Raja Madanapala” is obviously incorrect as the two authors are divided in point of chronology by no less than 200 years.

19. These MSS are available in the Government MSS Library at the B. O. R. Institute, Poona:—

- (1) No. 110 of 1873-74 dated Sahravāt 1855—A.D. 1799 see folio 21.
- (2) No. 109 of 1873-74—Folio 26—“खंजीरं लघु तद्गुणैः खंजीरं नाम गुणैः”
- (3) No. 459 of 1895-99—dated Sahravāt 1672=1616 see folio 48 (षष्ठो वर्गः)
- (4) No. 929 of 1884-87—dated Sahravāt 1761=A.D. 1705 vide folio 28.

20. Bhavamitra (c. A.D. 1550) in his *Bhāvaprakāśa* (B. O. R. I. MS No. 454 of 1881-82, folio 168—आम्रवर्णः) repeats the lines of Madanapala (A.D. 1374) as follows:—

॥ अथ खंजीर ॥

“खंजीरं मेजलं मेहं काकोटुंवरिका कलं ।
खंजीरं शीतलं स्वादु गुरुपित्ताश्रयालजित् ॥
तस्मादल्पगुणं शैत्यं खंजीरं लघु तद्गुणैः ।
तदुत्तरमेवोत्तरं भवति ॥”

Though the verses quoted above are written incorrectly they are sufficient to prove the fact of the existence of the *खजूर* or FIG about 1350 A.D. in Northern India where Raja Madanapala ruled.²¹

Mr. R. D. KINJAVADEKAR in an Appendix to his recently published edition of the *Sūtrasthāna* of the *Aṣṭāṅga Samgraha*²² has recorded some texts on the topic *स्वस्थपूत*. He quotes the following verse in which *खजूर* is referred to :—

Page 198—परिधिष्ठ—२. पानकानि (drinks or beverages) नारोद्वक्चम्—पानकम्
 “६६२—पञ्चाशोरं युक्तम् दशादाहिनम् तथा ।
 एकैकं सम्यक् भिन्नं पानकं कियते बुधैः ॥”

No indication of the source²³ or chronology of this verse has been given by Pt. KINJAVADEKAR.

In the *old Testament* of the *Bible*²⁴ we find references to FIGS brought unto Jerusalem on the Sabbath day. LIVY²⁵ the Latin Historian (59 B.C.—17 A.D.) refers to FIGS in the following quotation²⁶ :—

“*Ficus ficus, ligonem ligonem vocal.*”
 (He calls *figs figs* and *spade a spade*).

21. The above extract is not found in a dated MS of the *Bhṛugusāstra* (Sādavat 1:97 = A.D. 1741) where it ought to be found on folio 93b after *अमृतपत्र* and before *पौल*. This MS is No 901 of 1887-91—Madanapala is mentioned on folio 169.

22. Published by the Chitrasthala Press, Poona, 1940. If the expression “*पञ्चाशोरं*” means “dried figs” we have reason to believe that the drink was prepared from the pulp of dried figs in the century to which the verse belongs. We have already noted that the dry fig contains 60 to 70 per cent of grape sugar and hence a drink prepared from it may taste more sweet and delicious.

23. I have traced the verse in the *Kṛama Kutubhala* of Kṛama Śarma composed about A.D. 1548 (“*पञ्चाशोरं युक्तं दशैः (६ ?) दशैः भिन्नादिभिः*”—folio 52 of MS No. 887 of 1887-91—B. O. R. Institute). On folio 50 of this MS the verse reads as follows :—

“*पञ्चाशोरं कावुका दशदाहिनम् तथा ।
 एकैकं सम्यक् भिन्नं पानकं कियते बुधैः ॥*”

This verse is part of Chapter XII dealing with *पानक* like *नारंगपत्र पानक*, *खजूर पानक*, *मिष्टान पानक*, *पाकल पानक* etc.

24. *Holy Bible*. London, 1913, Page 561—*Nehemiah* Chapter. 13—“15. In those days saw I in Judah some treading wine presses on the Sabbath, and bringing in sheaves, and lading asses : as also wine, grapes, and Figs, and all manner of burdens which they brought into Jerusalem on the sabbathdays, and I testified against them in the day wherein they sold victuals”.

In *Judges IX* olive, fig and wine are mentioned.

25. Vide p. 530 of *Dictionary of Foreign Phrases and Classical Quotations* by H.F. JONES, London, 1918. Livy or Livius is noted for his History of Rome (vide p. 310 of *Smaller Classical Dictionary*, 1913).

26. Ibid., p. 44 (Latin Quotations).

BREWER²⁷ records the usages of the *Fig* in English language and literature such as—

(1) *Fig Sunday*—*Palm-Sunday* is so called from the custom of eating figs on that day.

The practice arose from the Bible Story of Zaccheus who climbed up into a fig tree to see Jesus.

(2) *Fig-tree*—It is said that Judas hanged himself on a fig-tree.

(3) *Figs*—I shan't buy my attic figs in future but grow them.

Don't count your chickens before they are hatched.

It was Xerxes who boasted that he did not intend any longer to buy his figs because he meant to conquer Attica and add it to his own empire but Xerxes met 'a signal defeat at Salamis and never loosed his sandal till he reached Abdira."

(4) "*In the name of the Prophet, Figs*"—A burlesque of the solemn language employed in eastern common business of life. The line occurs in the imitation of Dr. JOHNSON'S pompous style in *Rejected Addresses* by James and Horace SMITH.

The references to the *Fig* recorded so far do not clear up the question as regards its early existence in or its importation into India before A.D. 1000 during definite periods of history. The word *fig* is now current for the "*Fig*" and used by Madanapala of Northern India in A.D. 1374 is not a Sanskrit word as stated by WATT in his *Dictionary* or by the editors of the *Sabdakosa* who call it both Sanskrit and Persian. It is for linguists to record and prove its early usages from contemporary Indian sources. Obviously Madanapala used this word as a loan-word in his verses quoted by me already.

The absence of systematic historical study of the present Indian flora and fauna leads to a hazy and incorrect knowledge of Indian culture resulting in anachronisms. This absence of historical knowledge coupled with the prevalent uncritical methods of editing texts is responsible for *Figs* appearing in a Mahabharata passage along with other fruits like mangoes, pomegranates etc. which can claim much higher antiquity in Indian

27. *Dictionary of Phrase and Fable*, p. 460. See also p. 696 of *Shorter Oxford Dictionary*.

FIG—*HB* [*OF*—*figs*, *figus*; *L*—*figus*]. In the East and West Indies the word *Fig* is applied to *Bumelia* also to the Cochitonal Cactus (1582 A.D.); *Fig of Spain*, Italian *Fig* (A.D. 1691); The disease *Ficus* (pl.) (A.D. 1550).

—Vide p. 366 of BREWER'S *Reader's Hand book*, London, 1911. '*Fig of Holvan*'—Holvan is a stream of Persia and the Persians say its figs are not to be equalled in the whole of the world.

"*Locusts on the figs of Holvan*"—Sandi; *Golconda* (13th Century).

—*Adam's Fig*—Plantain fruit. Vide Tavernier's *Travels in India*, London, 1649—Vol. I, p. 247 and Vol. II, pp. 4 n, 263, 283.

literature than their junior-most confrère the Fig (*Añjira*). In the Poona Edition of the *Mahabharata* (Vanaparvan) we find the following line²⁸ in which *Añjira* has been referred to:—

“युष्मातस्तस्माज्जीराद् दाहिमान्जीवपूरकम्”

Evidently the MSS on the strength of which the above line was first edited must have been late copies prepared during a period of history when *अंजीर* became a common article of diet and hence the copyist without understanding the results of his tampering with the text introduced *अंजीर* in the Epic text. Thence forward it became a circulating joke and even in the Marathi translation of 1915 by no less a scholar than Pandit Appa Shastri RASHIVADEKAR गुलाब and *अंजीर* imperceptibly found their way unchallenged. These instances are sufficient to impress upon us the need for Critical Editions of Sanskrit texts and the Bhandarkar Oriental Research Institute will be thanked by all scholars not only of the present generation but of succeeding centuries for their harculean effort in the work of the Critical Edition of the *Mahabharata*. The B.O.R.I. constituted text²⁹ for the line in the Chitrashala edition referring to *अंजीर* reads as follows:—

“अजातकोस्तथा जीरान्दाहिमान्जीवपूरकम्”

It was by a curious coincidence that Dr. SUKTHANKAR informed me about his rejection of *अंजीरम्* from the line in question. While studying the references to *अंजीर* I inquired of him if he has come across any references to it in Sanskrit texts. In reply to this inquiry he drew my attention to the line in the Chitrashala Edition of the *Mahabharata* and his rejection of the reading *अंजीरम्* on the grounds of textual criticism. As *Añjira* is a loan-word in the Indian Vernaculars it is not found in early Sanskrit lexicons like the *Amarakośa*³⁰. The earliest Indian Materia

28. *Mahabharata* published by the Chitrashala Press, Poona. Vanaparvan, Vol. III, p. 247—उत्पुण्ड्रर्ष १८८.

In the Marathi translation of the *Mahabharata* (1915) by Pandit Appa Shastri RASHIVADEKAR we find “अंजीर, काजि” etc. in the translation of the above line on p. 320 of the Volume for *Vanaparvan*. He also translates “पादसम्पुटपूरकम्” as “गुलाब, पुष्प” etc. It remains to be proved if *अंजीर* and *गुलाब* (Figs and Roses) were known to authors of the *Mahabharata* or to our ancestors of the Epic times.

29. Variants rejected by Dr. V. S. SUKTHANKAR, the General Editor of *Mahabharata* are as follows: found on p. 519 of *Aranyaka parvan* (B.O.R. Institute, Stanza 40 of उत्पुण्ड्रर्ष) III, 155, 40—

K₂ B.D. (D5 om लघ्वीति (DC om) २.)

T₁G₂ 4 लघ्वीति

30. The *Amarakośa* (Kapila II—जीवविषयः) mentions *काजोद्व्याकिः* :—

“काजोद्व्याकिः कन्दुपल्लवः (२) उद्विज्जः ॥ ६१ ॥”

Bhānuji Dikṣita in his comment. व्याख्यानम् on *Amarakośa* explains:—“काजकि उद्विज्जः...लघ्वीति

many fruits are referred to but I fail to notice in this elaborate list any reference to *Añjira* in the MS of the work before me.

The Marathi Encyclopædia called the *Jñānakosā*³⁵ (1924), Vol. IX devotes a paragraph to the history of *Añjira* but the sources of this history are not indicated. Some points in this historical account may be noted here :—

- (1) South Arabia is the native place of the *Añjira*.
- (2) The *Añjira* may have migrated to other places from South Arabia.
- (3) Archæological research has proved the cultivation of *Añjira* thousands of years before the rule of the Greeks and Romans.
- (4) Definite evidence regarding *Añjira* is found in works dating 700 years before the Christian Era.
- (5) It is from Arabia that *Añjira* migrated to Rome, Greece, Asia Minor, Italy, Portugal, France, Khorasan, Hirat, Afghanistan, China.
- (6) There are many varieties of the wild *Añjira* in India but the variety used in India for eating was unknown in this country up to the 14th century.
- (7) Dried *Añjirs* are imported into India from Smyrna in Asia Minor.
- (8) *Añjira* is called "ईरीर" in Asia Minor. The name *Añjira* is possibly a corruption of "ईरीर".³⁶

The history of *Añjira* recorded in the *Jñānakosā* is practically the same as recorded by me from several other sources. It is for linguists to say whether the derivation of the word *Añjira* from "ईरीर" given above is historically correct.

If *Añjira* used for eating was unknown in India up to the 14th century as stated above it is impossible to find any references to it in Indian

³⁵ The *Kṣemakhaṇḍakā* of Kṣemas'arman (16th century) gives the use of *अंजिर* fruit in cooking :—

Folio 30 of B.O.R.I. MS 887 of 1887-91.

"फलमौषधम्बरं बालममलकं च स्वेदितम् ।

वेसवारभूते स्वाज्ये पाचितं सैषान्वितम् ॥

शीतं कषायमयुरं रक्षित्वापानम् ।

मृदुचूचुर्हं सम्प्रतिषर्वाप्यानकारकम् ॥"

³⁶ Ed. by Dr. S. V. KETKAR, Vol. IX, pp. (3) 40-41)

³⁶ Dr. KETKAR states that the cultivation of the *Añjira* in Maharashtra is found in the Purandar taluka of the Poona District. Some foreign species of *Añjira* are imported for cultivation into India but they have not fared well.

literature before A.D. 1000, much less in the *Mahabharata* times and consequently it is an anachronism to insert it in the text of the Great Epic as we find it in the Chitrashala Edition of the *Mahabharata*. If any scholar succeeds in proving the existence of either imported or cultivated *Añjira* on Indian soil before the Christian Era he will be justified in imagining its presence in the *Mahabharata* text. So far I can see no a priori case made out in support of such insertion and I await more light in this matter from experts in the ancient Indian history and culture. For the present we must go by the text of the *Mahabharata* purged of any references to *Añjiras* and *Gulabs*,³⁷ which are evidently late importations³⁸ into Indian history and culture. If *Añjira* migrated from the Mediterranean region to Greece³⁹ and Rome and then to the Eastern countries like Syria, Arabia, Persia (and lastly India) its history (say between the 1st century A.D. and the 14th century A.D.) is closely connected with the cultural history of these nations and it is the business of the historians of these countries and their culture to record definite chronological evidence regarding such history from the literatures of these countries, to any knowledge of which I can lay no claim, I would, however, feel satisfied if any scholar takes the history of the *Añjira* backwards from A.D. 1300 say by at least 500 years on the strength of definitely dated evidence, preferably from Indian or Persian or Arabic sources.

The following chronological table would give at a glance the chronology of the *Añjira* recorded in this paper :—

37. I propose to publish a historical paper on the *Gulab* in India in the near future.

38. Though contact of India with Greeks and Romans is a matter of known history there is a notable absence in Indian literature of any reference to the *Añjira* in early works contemporaneous with the Greek and Roman history. In the study of Indian Plants and Animals known to the Greeks published in the *Indian Antiquary*, (Vol. XIV) 1885, pp. 274 ff. no reference is found to any species of the *Fig*, either wild or cultivated. Only *Pipal* tree seems to have been known to the Greeks. Though Prof. Franklin EDGERTON has found a reference to the city of Rome in the *Sabbāparvan* of the *Mahabharata* (JAOS, Vol. 58, pp. 262-265) on case has been made out for *Añjira* in the *Mahabharata* either on textual or historical grounds. Rome is included among the cities conquered by Sahadeva (*Sabbāparvan* Book 7).

39. A. K. NAIRNE (*Flowering Plants of Western India*, London, 1894, pp. 304 ff.) deals with *Fig* and its Species which include *Vag*, *Pipal*, *Kal-umber* (बालाहक ?) and *Anjir* (*Ficus Carica*—p. 303). He gives the following reference to the *Fig* in Book 8 of *Odyssey* :—

"There (in the garden of Alcinoüs) grow tall trees blooming, pear trees, and pomegranates and apple trees with bright fruit, and sweet figs and olives in their bloom." Nairne further observes :—

"The figs grown in India must be placed far below those of England, and these again are in flavour nowhere near the Italian figs; but the scientific cultivation of fruit in India must come in time."

Chronology	Particulars (P=ANJira)
	Pre-historic evidence about leaves and fruits of wild P (<i>Ficus Carica</i>) in quaternary strata near Paris and Marseilles.
1000 B.C. } or about 850 B.C. }	Homer refers to F in <i>Odyssey</i> .
.. 559 B.C.	F unknown to Persians according to Herodotus.
.. 484 B.C.	Birth of Herodotus, who refers to F.
B.C. 485-465 B.C.	Xerxes, King of Persia with whom <i>Attic Figs</i> are associated.
From about 330 B.C. upto 160 B.C. }	References to F in the <i>Old Testament</i> of the <i>Holy Bible</i> .
59 B.C.—17 A.D.	Livy, the Latin historian refers to F.
A.D. 23-79	Pliny, the Roman author, refers to the varieties of F.
Between A.D. 200 and 800	In the Pahlvi ⁴⁰ work <i>Nirangastān</i> "juice of figs" is mentioned.
A.D. 1250	Figs of Holvan in Persia referred to by Sadi in <i>Gulistan</i> .
A.D. 1326	Batutta refers to figs in Palestine and Syria.
A.D. 1374	Reference to F in the <i>Madanavinoda Nigam</i> of Madanapala.
A.D. 1504	F on the west-coast mentioned by Vertama, the Italian traveller.
about 1526 A.D.	Baber's reference to F.
.. 1548 A.D.	F referred to in the <i>Kṣemakutaphala</i> of Kṣemasarma.
.. 1550 A.D.	F referred to by Bhāvamīra in <i>Bhāvaṇṇakava</i> .
.. 1691 A.D.	Figs of Spain and Italy referred to.
.. C. 1730 A.D.	Figs sent to Nana Sahib Peshwa by his mother Kathibai.
.. 1789 A.D.	F mentioned in the Peshwa period (at Poona).

40. Vide p. 353 of *Airpatāstān and Nirangastān* Eng. Trans. by S. J. BULSARA, Bombay, 1913. My friend Mr. M. F. KANGA of Bombay informs me that the word ANJira does not occur in Avesta literature. It is found in the Pahlvi language and literature, which flourished from 3rd to 9th century A.D. (Vide pp. 293-297 of *History of Zoroastrianism* by M. N. DHALLA, Oxford Uni. Press, 1938). Detailed Chronology of Pahlvi references to the fig must be reserved for a separate study by Parsi scholars themselves as I have no first-hand knowledge of their sacred texts and other early literature.

P.S.—Studies bearing on the history of Indian culture require the cooperation of experts in the different branches of Indology. I am, therefore, extremely, thankful to my friend Khan Bahadur Prof. SHAUKH Abdul-Kadir-e-Sarfraz, M.A., I.E.S., (Retd.), for the following note on the history of the Fig, which was received by me after the composing of my paper by the press. This note fills in a gap in my Chronology for the Fig and thus enriches my present paper :—

1. MOLESWORTH says the word is Sanskrit or Persian.

2. In Persia (post-Islamic) the word is undoubtedly extensively used from very old times to modern. Sadji (XIII c.) used it; Nizami (XII) used it several times. Two forms of the word seem to have been in use "Anjir" and "Anjirah." There is an infinitive also, "Anjir-dan," which means 'to bore a hole, drill, perforate.' The word occurs in several compounds also, such as "Anjir-e-Adam," or "Anjir-e-Dasht," i.e. 'Adam's Fig,' which is our 'Udumbar,' glomerous fig; "Bed-anjir," which is Palma Christi, or our 'Erand.' Long descriptions of the principal varieties of Anjir, the properties and the medicinal use of it are given in Persian Pharmacopoeias and medical books. Three principal varieties are mentioned: *Barri*, which grows in plains, *Kohi*, which grows on mountains, and *Bustani*, which grows in gardens. Another variety called "Shahr," 'Royal' is said to be specially delicious and quite suitable for eating; the blackish variety is generally used in medicine.

3. The home is said to be Syria or Asia Minor.

4. In pre-Islamic Persian or Pahlavi the word for "Fig" is not "Anjir" but "Tin."

5. In Arabic the word for "Fig" is "Tin." It is used in the Qur'ān, only once. There is a chapter of the Qur'ān, the 93th, which is entitled "The Fig," because it begins with the words "By the Fig." The commentators say that God swears by the fig, because "it is wholesome and of easy digestion, and physically good to carry off phlegm, and gravel in the kidneys, or bladder, and to remove obstructions of the liver and spleen, and also cures the piles, and the gout etc." (SALE'S TRANSL.) The word "Fig" is also held symbolical, but there is a good deal of difference of opinion about the exact interpretation thereof. Some take it to stand for the Jewish or Moslem dispensation which was to wither away like the Fig-tree in the Gospel; others say that it may stand for man's destiny. The word "Tin" used in the Qur'ān and the Arabic literature was well-known in Pre-Islamic Arabia. It is generally taken to be Arabic, but according to some (Western) scholars borrowed from Akkadian "tinnu," "tinnu."

6. The word "Fig" occurs in the Bible in a number of places. See any concordance. In Matthew, e.g., 20. 1. Jesus is said to arrive at a place called Beth-Phage, which literally means "the house of figs." It is stated in the Bible that when Adam discovered his nakedness in the garden of Paradise, or Eden, he sewed fig leaves and made aprons. Now this garden of Eden or Paradise, according to Higher criticism is located generally on the banks of the Euphrates and the Tigris.

7. The fig is said to have been introduced in England by Cardinal Pole (1500-58).

34. Some Notes on the History of the Fig — Does the word "Phalqu, used by Caraka and Suśruta mean "Āñjira" ? *

In my paper¹ on the History of the Fig I have recorded evidence which suggests that the FIG (*Ficus Carica*) migrated to India very late, the earliest reference to it as "Āñjira" being found in a Sanskrit *materia medica* of A.D. 1374. The term "Āñjira" for the FIG is evidently a loan word from the Persian, where it is found in the Post-Islamic Persian.² The word TIN for the FIG as used in the *Qur'an* is Arabic and according to some Western scholars it is borrowed from Akkadian "tittu", "tintu".³

The above evidence raises the question : Is there any word in Sanskrit for Āñjira or Tin or *Ficus Carica* ? I have not been able to trace any Sanskrit equivalents to the names of the Fig used in Persian, Arabic and Latin. Recently while reading a Marathi translation⁴ of the celebrated medical work *Suśrutasaṃhitā* in Sanskrit I found that the translator had translated the Sanskrit term *Phalgu*⁵ by the term Āñjira. This translation led me to examine the question further and I note below some evidence which suggests that the word *Phalgu* used in the *Phalavarga* of the *Suśrutasaṃhitā* cannot be identified with the Āñjira fruit.

Vāgbhaṭa I—(7th century A.D.) in his celebrated work *Aṣṭāṅga-saṃgraha*⁶ uses the word *Phalgu* in the following verse :—

“सौवर्चदराहोतकलुकेष्वातकोद्भूतम् ॥ १६६ ॥”

Indu's commentary on the above line⁷ reads as follows:—

“मोचादिप्रियाकार्णां बृहत्पुत्वादिगुणयुक्तम्”

* *Indian Historical Quarterly*, Vol. XIX, pp. 62-65.

1. *New Indian Antiquary*, July 1941, pp. 125-136.

2. *Ibid.* p. 136.

3. *Ibid.*

4. *Sārtha Suvrīda Saṃhitā* by Vaidya Kṛṣṇaśāstri Poadke, Bombay, 1921 (Part I).

5. *Ibid.*, p. 435—*Sātrasthāna*, ch. 46 “श्रीषष्ठ... म फलं फलपुष्प... प्रयुज्यते” १६६ ॥

(फल्गु—अंजीर (trans.))

p. 436—“विद्यमानं मधुरं तिग्मं कन्दुं सुखं गुरु” ॥ १८१ ॥

(Trans. “अंजीरं मलावरीहं करपारा, मधुरं, तिग्मं, सुखं, तिग्मं वगुणं अस्ति अंजीरं”)

6. Ed. with Indu's Comm., *Suśrutasaṃhitā* by Pt. Rāmachandra Śāstri Kojavadekar. Chitra Shala Press, Poona, *Sātrasthāna*, (1940).

7. *Ibid.*, p. 62.

In this explanation we miss the explanation of the word *Phalgu* but Mr. R. D. Kinjavadekar in his Sanskrit notes on the line observes :—

“कल्युः काकोदुम्बरिका स्वनामक्यातः खरपत्रो दृष्टविशेषः (काळा उंबर) अत्र केचन कल्युः, येन रामोदुम्बरिकाफलम् (अंजीर) इत्याहुः ।”

This explanation⁸ shows that a belief exists among the modern Vaidyas that the word *Phalgu* means *Āñjira*, and Vaidya Phadke's equation *Phalgu = Āñjira* in the *Suśrutasaṃhitā* is evidently on the lines of this belief. We must, therefore, see if this belief is warranted by the earliest explanation of the word *Phalgu* occurring in Sanskrit medical works or elsewhere.

In the *Aṣṭāṅgaśāstra* of Vāgbhaṭa II (8th or 9th century A.D.) the line⁹ from the *Aṣṭāṅgasamgraha* is obviously repeated as follows:—

“लोषोरवदराहोतकल्युषेष्वातकोद्वक्त्रम्”

The commentators Aruṇadatta (c. A.D. 1220) and Hemadri (c. 1260 A.D.) explain¹⁰ the word as “कल्युः—काकोदुम्बरिका.” In footnote 30 of my paper¹¹ on the History of the Fig I have recorded the following facts:—

- (1) A.D. 1374 —Madanapāla refers to *Āñjira* in the line:—
“अंजीरं मूलं मेहं काकोदुम्बरिकाफलम्”
- (2) Madanapāla appears to equate the fruit *काकोदुम्बरिका* with *अंजीर* perhaps on account of the similarity of the latter with the former.
- (3) *Amarakośa* (before 8th cent. A.D.) uses the word *Phalgu* in the following line :—
“काकोदुम्बरिकाफलस्य लघु(दुर्लभ)नेफला”
- (4) Bhanuji Dikṣita (c. A.D. 1630) explains the above line from the *Amarakośa* as :—
“काकप्रिया उदुम्बरी... चत्वारि ‘मलया’ ‘कदुम्बरी’ इति ख्यातस्य”
- (5) Sarvānanda (A.D. 1159) comments on the above line :—
“काकोदुम्बरिकाचतुर्द कोदुम्बर इति ख्याते”

It would appear from all these explanations that the word *Phalgu* used by the *Suśrutasaṃhitā* and repeated by Vāgbhaṭa I and Vāgbhaṭa II in their treatises means *कोदुम्बर* or its variety *काकोदुम्बरिका* with which later

8. *Ibid.*

9. Ed. by Hari Shastri Parādkar, N. S. Press, Bombay, 1939 (with my English Introduction dealing with Vāgbhaṭa II and his Commentators).

10. *Ibid.*, p. 110—*Suśrutasaṃhitā*—“अमृतमण्डपिकायाः अष्टादशः ६”

11. *Ibid.*, pp. 110, 111.

12. *New Ind. Ant.*, July 1941, pp. 131-132.

Madanapala (in A. D. 1374) possibly identifies the term *अंजीर*. The explanation of Madanapala being a very late one can have no determining force in equating *Phalgu* with *Añjira* as our Vaidyas are inclined to do at present. This view of mine is further substantiated by the following evidence :—

The *Caraka Samhitā*¹³, the earliest known medical text uses the word *Phalgu* in the following line :—

“तर्पणं बृहणं फल्गुं शिष्टमिह द्यौतलम्”

Cakrapānidatta (c. 1060 A.D.) explains the word *Phalgu* as “*Audumbara*.” In view of this explanation of the earliest commentator on the earliest medical treatise of *Caraka* I am inclined to believe—

- (1) that the word *Phalgu* used by *Caraka*, *Sūruta*, *Vagbhata* I. *Vagbhata* II means “*Audumbara*” fruit as stated by *Cakrapānidatta* (c. 1060 A.D.) and
- (2) that it may have been used for a variety of the “*Audumbara*” fruit called by the names *काकोदुम्बरिका*, *कोठाडवर*, *काउम्बरी*, *कदुम्बरी*. When *Añjira* got naturalized in India people may have called it by these names perhaps on account of its similarity with the *Añjira*. If *काकोदुम्बरिका* is identical with “*काळ उंबर*” a *black audumbara* as suggested by R.D. Kinjavadekar we may be able to account for the name *काकोदुम्बरिका* for *Añjira* mentioned in the work of Madanapala in A. D. 1374. Prof. Shaikh¹⁴ mentions some varieties of *Añjira* which include “a *blackish variety generally used in medicine*”. Perhaps this blackish variety may have been used for medical purposes in India in Madanapala's time and hence it may have been confounded with *काकोदुम्बरिका* or a blackish variety of the *Audumbara* fruit mentioned in the *Amarakośa*.

In view of the foregoing discussion I find it difficult to equate *Phalgu* of the *Carakasamhitā* and the *Sūratasamhitā* with *Añjira*. For the present I am inclined to accept the explanation of *Cakrapānidatta* (c. A.D. 1060) that *Phalgu* in the *Carakasamhitā* means “*audumbara*”. The medical glossary *Dhanvantarimighaṇṣu* which is earlier than the *Amarakośa* contains no reference to *Añjira* but on the contrary the properties of the “*audumbara*” and “*Kakodumbarikā*” are separately given in it.

13. *Carakasamhitā*, N. S. Press, Bombay, 1922, p. 156.

14. *NIA*, July 1941, p. 136.

In a paper contributed by me to the Proceedings of the Indian History Congress (Hyderabad) I have pointed out that Bindusāra, the father of Emperor Aśoka ordered some figs and raisin wine from Antiochus Soter, the then king of Syria.¹⁵ These figs were sent to Bindusāra by his Syrian ally. Bindusāra came to the throne in B.C. 298, while Antiochus died in B.C. 261. In view of this interest of Indians in the figs as early as 3rd century B.C., one wonders why the Añjira or Fig appears very late in Indian literature. Is it possible to find any evidence in Indian sources about at least imported figs, if not those cultivated on Indian soil? Any evidence bearing on this question from Indian sources between say B.C. 100 and A.D. 1000 is eagerly awaited by me from scholars working in the field of the early history of Indian culture.

15. V. Smith, *Early History of India*, (Oxford, 1914), p. 147.

35. Early Indian Interest in Syrian Figs in the 3rd Century B.C. contrasted with their late Cultivation in the Deccan in the 17th Century A.D.*

In my recent paper¹ on the history of the Fig (*Ficus carica*) from about 1000 B.C. to A.D. 1800 from foreign and Indian sources the earliest dated reference to Fig or *Anjira* in Sanskrit texts recorded by me is of A.D. 1374. No earlier reference could be found by me. It is, therefore, necessary to record any evidence regarding the knowledge of the Fig that could be ascribed to Indians on the strength of Indian or foreign evidence regarding the early Indian contact with Greece and Rome. While discussing this question with my friend Dr. P. V. Bapat, M.A., Ph. D. of the Fergusson College, Poona, I inquired of him if he could give me any reference to the Fig in early Buddhist literature. Though he could not point to any such evidence in the Buddhist records he invited my attention to a passage in the *Early History of India*² by Vincent Smith according to which Antiochus Soter³, the king of Syria, forwarded some Figs to king Bindusāra (298 B.C.). These figs were sent to this Indian monarch in response to his own request about (1) Figs, (2) raisin wine and (3) a professor. As the evidence recorded by Smith has a direct bearing on the history of the Fig I quote it below :—"The anecdote concerning the correspondence between Antiochus and Bindusāra although trivial in itself is worth quoting as a tangible proof of the familiar intercourse between the sovereign of India and his ally in Western Asia. Nothing we are told being sweeter than the figs, Bindusār begged Antiochus to send him some figs and raisin wine and added that he would like him also to buy and send a professor. Antiochus replied that he had much pleasure in forwarding the figs and raisinwine but regretted that he

**Proceedings of Indian History Congress* (Fifth Session), 1941.

1. Vide pp. 125—136 of *New Indian Antiquary*, Vol. IV (July 1941 issue).
2. Third Edition, Oxford, 1914, p. 147.
3. *Ibid.* p. 220, footnote 1 "Antiochus Soter died between July 262 and July 261 (B.C.) at the age of sixty four." According to *Smaller Classical Dictionary* (ed. F. H. Blakeney), London, 1913, p. 47, this king of Syria reigned from B. C. 280 to 261. He was the son of Seleucus I, the founder of the Syrian kingdom. He married his step mother with whom he fell violently in love and whom his father surrendered to him. He fell in battle against the Gauls in B. C. 261.

could not oblige his correspondent with the last named article because it was not lawful for Greeks to sell a *professor*."

The above passage makes amusing reading. Obviously the Greek professors were not marketable commodities like figs and raisin wine in those days! If figs from Western Asia were known to Bindusāra in the 3rd century B.C. one wonders how their cultivation on Indian soil took more than 1500 years to be effected. Then again one is curious to know why any appellations of the *Fig* have not been preserved in Sanskrit or Prakrit literature between say B.C. 298 and A.D. 1200. Whatever be the reasons for the absence of the *fig* in Indian sources before A.D. 1000, Bindusāra's interest in a Greek professor and figs in the 3rd century B.C. has a distinct place in any history of the *Fig*, whether imported from foreign countries or cultivated on Indian soil. Bindusāra was the son of the celebrated Maurya Emperor Candragupta and father of Aśoka Maurya. It is, therefore, possible to presume that even during the time of Cāpakya, minister of Candragupta, imported figs may have been known in India though in the Arthashastra of Cāpakya one fails to notice any reference to the figs.¹

According to Smith the Deccan or Peninsular India must have been subjugated by either Candragupta or Bindusāra. Now a sovereign who ruled over the Deccan in the 3rd Century B.C. had sufficient knowledge of the foreign figs to enable him to order a few of these figs from his ally in Western Asia; but it is a curious contrast with this fact that we find ourselves in difficulties as regards the exact or approximate chronology of the cultivation of the fig trees in the Deccan. In this connection I have already recorded a reference of c. A. D. 1730 when the mother of Nana Sahib Peshwa of Poona procured for him nine figs. This reference shows the rarity of this fruit at that time in the Deccan. Since recording the above evidence I have come across a reference to *Anjira plants* in a Marathi work² called "*Pustaka Mestaka*" which according to Mr.

1. In Chapter XV of *Arthashastra* Trans. by Shamasastry, (1929) the following fruits are referred to:—grapes, *Jambu*, jack fruit, *Corbitta*, cucumber, mango, *Karamarda*, *Vidatamalaka*, *Matulunga*, *Kola*, *Bisdara*, *Sauvra*, *Parushaka* (p. 101). Chap. XVII deals with Forest Produce but fruits are not specified. Kauṣilya only remarks "Bulbous roots and Fruits are the group of medicines" (p. 106). Chap. XXIV on Agriculture refers to Fruits like *Vatighela* (pumpkin, gourd and the like), grape. Chap. XXV (on liquor)—"Fruit of *Putraha*" (p. 132), grapes, mango, (*Sahakara*), *Phaloma* (acid drink) from Fruits (p. 134). Chap. XI—"Mango fruit" (p. 79). *Matulunga* (p. 80).

2. B. I. S. Mandal, *Itihasa* (?), pp. 27-26.

Rajawade, the Maharashtra historian was composed during the reign of Rajaram Chatrapati (A. D. 1689-1700).¹ This inference is in keeping with the date of the MS of the work viz. Śaka 1667-A. D. 1745. The MS was found at Masur in the Satara District of the Bombay Presidency. This work gives a list of trees to be recorded by the village official in his books. In this list² I find a mention of *Āñjira* tree along with other trees of economic value to government. If Rajawade's inference about the date of the the work is correct we have reason to believe that *figs* had come to be cultivated in the Deccan before say A. D. 1690. Their economic value to government naturally led to the *Anjira* plant being included in the list of cultivated plants, which the village official was required to maintain possibly under the orders of the then government. If in northern India Raja Madanapāla ruling on the bank of the Jumna in A. D. 1374 refers to the properties of *Anjira* in his *Materia Medica* called the *Madanavinodanighanṭu*, we find in the Deccan a Marathi writer of c. A. D. 1690 recording the *Anjira* plant among plants of economic value to government. Further references to the cultivation of the *fig* or *Anjira* in Indian provinces need to be recorded from Indian Vernacular sources, if possible. In spite of the sweetness and delicious nature of the fruit the *Anjira* had a very slow course in its cultivation on Indian soil, unlike tobacco, which within 50 years of its advent in India between A. D. 1600 and 1650 was cultivated in the Deccan in abundance. In fact the Bijapur Sultans had a regular Tobacco Department with a special Officer in charge of it. As Antiochus was the king of Syria between B. C. 280 and 261 the reputation of figs in Syria must have been sufficiently great to attract the attention of his contemporary Bindusāra, the then sovereign of India. The despatch of Syrian figs to India in the 3rd Century B. C. is in harmony with the references to figs in the *Old Testament* of the Bible (say between 330 to 160 B.C.). It would, therefore, be useful to investigate if any sculptures of the Indo-Greek period of Indian history contain any representation of the fig plant, its leaves or fruit; but, I leave this problem to the students of Indian Archaeology and sculpture for the present.

1. *Ibid.*, p. 27.

2. *Ibid.* p. 30. This is a fine list of fruit bearing and other plants, that were grown in the Deccan when the work was composed.

36. Some Notes on the History of Candana (Sandal)
in general and of śveta-candana
(white sandal) in particular—
Between B.C. 500 and 900 A.D.*

Yule and Burnell make the following remarks on *Sandal* (*Candana*) in their *Hobson*—*Jobson* (London, 1903, pp. 789-790) :—

"SANDAL, SANDLE, SANDERS, SANDAL-WOOD — s. From Low Latin Santalum.....coming from the Arab. *Sandal* and that from Skt. *Chandana*. The name properly belongs to the fragrant wood of the *Santalum album* L. Three woods bearing the name *Santalum*, WHITE, YELLOW and RED were in official use in the middle ages. But the name red Sandal-wood or Red Sanders has been long applied, both in English and Indian vernaculars to the wood of *Pterocarpus santalina*, L. a tree of South India, the wood of which is inodorous but which is valued for various purposes in India (pillars turning etc.) and is exported as a dye-wood. According to Hanbury and Flückiger this last was the *Sanders* so much used in the cookery of the middle ages for colouring sauces etc. In the opinion of those authorities it is doubtful whether the red sandal of the mediæval pharmacologists was a kind of the real odorous sandal-wood, or was a wood of *Pteroc. Santal*. It is possible that sometimes the one and sometimes the other was meant. For on the one hand, even in modern times we find Millburn (see below) speaking of the three colours of the real sandal-wood; and on the other hand we find Matthioli in the 16th century speaking of the red sandal as inodorous.

It has been a question how the *Pterocarpus santalina* came to be called sandal-wood at all. We may suggest as a possible origin of this, the fact that its powder "mixed with oil is used for bathing and purifying the skin." (*Drury* s. v.), much as the true sandal-wood powder also is used in the East."

The following usages of "*Sandal*" are next recorded in the *Hobson*—*Jobson* :—

c. A.D. 545 — "*Sandalwood*" (*Cosmos* in *Cathay* etc.)

A.D. 1298 — "*Sandal*" (*Marco Polo*. Geog. Text ch. exci).

c. A.D. 1390 — ".....colour it with *Saunders*" (*Wright, Domestic Manners*, etc. 350).

A.D. 1554 — "*Santal*" (*Matthioli*—old Fr. version—liv. i. ch. xix).

* *New Indian Antiquary*, Vol. VIII (1946), pp. 157-182.

A.D. 1563 — "*Sandal* grows about Timor which produces the largest quantity and it is called Chundana and by this name it is known in all the regions about Malaca, and the Arabs being those who carried on the trade of those parts, corrupted the word and called it *Sandal*. Every Moor whatever his nation calls it thus....." (*Gracia*, fol. 185 v.).

A.D. 1584 — "*Sandals*" from Cochin and Malacca (*Wm. Barret* in *Hakl.* ii, 412).

A.D. 1613 — "*Sandal* trade" (*Bocarro*, *Decada*, 723).

A.D. 1615 — "*Sanders-wood*" (*Samsbury*, i, 380).

A.D. 1813 — "*Sandal*" (red, yellow and white shades of the same colour, *Milburn*, i, 291).

A.D. 1825 — "*Red Saunders*" (from Coromandel coast imported to England for dying)—(*Milburn*, ed. 1825, p. 249).

The foregoing chronology for *Sandal* from foreign sources clearly shows the reputation of *Candana* among foreigners for about 1500 years. I may add to the above references the following remarks of Nairne (285 of *Flowering Plants of Western India*, 1894) :—

Santalum album—

".....habitat from Poona southwards, elsewhere planted. The Abbé Raynal describes it under the unromantic name of the *Sanders* tree. Some authorities consider that the *algum* or *almug* tree (1 Kings X. 11 ; 2 Chron. ii. 8 etc.) was the *Sandal* (*Dictionary of the Bible*) but Hooker thinks it was probably either *Pterocarpus Santalinus*, or Bombay blackwood (*Teachers' Bible*). The ancient Hindoos had no liking for the tree.¹ Sir M. Williams quotes from the "*Hitopadeta*" : "The root is infested by serpents, the blossoms by bees, the branches by monkeys, the summit by bears. In short there is not a part of the *Sandal* tree that is not occupied by the vilest impurities."

The chronology of the *Chandana*² in its cultural perspective can be easily recorded on the strength of extant texts, Jain, Buddhist and Brahmanical. We must, however, study in detail the varieties of *candana*

1. This remark is contradicted by the evidence about the popularity of the *Candana* tree and its products in India for more than 2000 years. What the rose was to the Persians, the *Candana* was to the Indians, as vouched by the literature of Persia and India.

2. The Paharpur Copper-plate inscription of A.D. 478-9 mentions "*Sandal*", incense etc. as requisites for Jaina Arhats (see p. 73 of *Jaina Antiquary*, Jan. 1947 and *Epi. India* XXII, 63-4 and B. C. Law Vol II, pp. 252-3). This inscription is of the Gupta year 139.

known to ancient Indians and their products used in the domestic and court life of our ancestors through successive centuries of Indian civilization. With a view to facilitating such a study I note below a few references which will indicate the landmarks in the history of the *candana* plant in India :—

(1) In the list of *Vedic Plants* recorded by Dr. G. P. Majumdar (*B. C. Law Volume, I*, 1945, pp. 645-668) no reference to *candana* is found, though he records some other fragrant plants like—*Aukṣaṅgandhi* (A. V. iv, 37, 3) mentioned along with *Guggulu* and *Naladī*; *Kiṣṭha* (A. V. v, 4 etc.); *Pūla* (A. V. iv, 37, 3; *Pramuṇḍani* (*Kauś. Sūtra*, viii. 17 etc.) a sweet-scented plant, etc.

(2) The word *candana* is found in the following Upaniṣads :—

(i) *Vasudeva Upaniṣad*, (ii) *Gopīcandana Upa.* and (iii) *Rāmapūrvaṭāpani*, (see Jacob's *Concordance*, Bombay, 1891, p. 352).

The references recorded by Jacob do not mention any variety of *candana* as such. The *Vasudeva Upa.* mentions *kuṅkuma* along with *candana*. The *Bhagavadgītā* contains no reference to *candana* (see *Bhagavadgītā Word-Index* by P. C. Diwanji, Bombay 1946).

(3) The *Arthashastra* of Kautilya contains detailed observations about *candana* in Ch. XI of Book II (p. 79 of Eng. Trans. by Shama Sastry, 1929) :—

“(As to) *candana* (sandal) :

Sātana is red and smells like the earth³; *Goṣṭraka* is dark-red and smells like fish; *Haricandana* is of the colour of the feathers of a parrot and smells like tamarind or mango fruit; likewise *Tārṇasa*⁴; *Grāmeruka* is red or dark-red and smells like the urine of a goat; *Daivasabheya* is red and smells like a lotus flower, likewise *Aupaka* (*Jāpaka*); *Jonaka*⁵ and *Taurapa*⁶ are red or dark-red and soft; *Māleyaka*⁷ is reddish white;

3. Like the smell of the earth when rain water falls upon it — Com.

4. This is of the colour of the feathers of a parrot and of sour smell — Com.

5. Product of the country of Kāmarūpa, Assam — Com.

6. Is this *Māleyaka Candana* identical with the *Malayaja*? The colour of the *Māleyaka* is mentioned as *pañḍuraka* (reddish white) while according to me *Malayaja* = *Svetā Candana* (white Sandal).

7. The Sanskrit text for this passage reads as follows on p. 78 :—

“~~Candana~~—

Sātanam raktam bhūmīgandhi (1)

Kucandana is as black as *Agarū* (resin of the aloe) or red or dark-red and very rough; *Kalapavataka* is of pleasant appearance; *Kośākārapavataka* (that which is the product of that mountain which is of the shape of a bud) is black or variegated black; *Śtōdaktiya* is black and soft and smells like a lotus flower; *Nāgapavataka* (that which is the product of Naga mountain) is rough and is possessed of the colour of *Saivala* (*Vallisneria*); and *Sākala* is brown.⁷

Light, soft, moist, (*asyana*, not dry), as greasy as ghee, of pleasant smell, adhesive to the skin, of mild smell, retentive of colour and smell, tolerant of heat, absorptive of heat, and comfortable to the skin,—these are the characteristics of Sandal (*Candana*)."

We may here note that in the above elaborate and minute account of *candana* and its varieties given in the *Arthaśāstra* there is no reference to the white sandal (*sveta-candana*) which we get in some late works. The colours of *candana* varieties mentioned by *Kauṭilya* are red, dark-red, black, colour of the feathers of a parrot, colour of *Saivala*, and reddish white, but not pure white.

(4) We are familiar with the following verse⁸ which associates *canadana* with the *Malaya* mountain :—

Goṛṭṛakamī kīlatīmrām matsyagandhi (2)

Haricandanam śukra-varavarāmīmrāgandhi (3)

Tarjāsamā ca (4)

Grāmarukam raktam raktakīlām vā kāmāmīmrāgandhi (5)

Daivasabhojyam raktam padmāgandhi (6)

Japakamī ca (7)

Jaiṅgakam raktam raktakīlām vā śnigdhām (8)

Taurṇpam ca (9)

Malayakam jñāṇīrūṣakām (10)

Kucandanamī kīlarūṣamagurukām raktam raktakīlām vā (11) *Kalapavatakamaṇa*-*vadyavarṇam* vā (12) *Kośākārapavataka* kīlām kīlacīram vā (13) *Śtōdaktīyam* padmābham kīlāśnigdhām vā (15) *Nāgapavatakam* rūṣamśaivalavarṇam vā (15) *śīkalamkapilamīti*."

8. Vide p. 176 of *Subhāṣitaratnabhāṇḍāgarā*. N. S. Prem⁸. Bombay. 1911—Some other verses which connect the *Canadan* plant with the *Malaya* mountain may be noted here :—

Page 312 — "*Malayajarasavilīptatānavāḥ* abhīdrikṣṭāḥ || 23 ||"

Page 63 — "*Malayabhuvīvirūḍhacandanānabbividdho*

Na bhajati kila vepuḥ saurabham candanasya !"

Page 90 — "*Malayācalagandhanā tvindhanam candanīyate*."

Pages 248-9 — Verses 40-61 on *anyoktis* regarding *Canadana* — Some of these verses associate *Canadana* with the *Malaya* mountain. A few verses refer to presence of serpents on the *Canadana* trees.

"Atiparicayādevajñā saṃtatagamanādanāro bhavati |
malaye bhīllapurandhī candanataru-kāṣṭhamindhanaḥ kurute ||"

In connection with the above association of *candana* with the *Malaya* mountain I have to state that we have the following testimony for it from a Chinese source of the 7th century A.D. :—

Shaman Hwui Li, the pupil of Hiuen-Tsiang (A.D. 645) describes in his *Life of Hiuen-Tsiang* (Trübner, 1911, p. 140) the *Sandal* and *Camphor*⁹ trees in the country of *Malakūta* bordering on the sea-coast as follows :—

"To the South of this Kingdom bordering on the sea is *Malayagiri*, with its precipices and ravines, towering upwards and lying deep. Here is found the WHITE SANDAL-SCENTED tree, the *Chandaneva* tree. This tree is like the white poplar. Its substance being of a cold nature many kinds of SNAKES frequent the trees during summer but in the winter they conceal themselves in the ground. Thus this kind of sandal tree is distinguished.

If the above description of the *white candana* tree growing on the *Malayagiri* is true to facts we have in it reliable evidence of a foreign source regarding the production of *white candana* tree on Indian soil in the 7th century A.D. The question now arises : Was the *white candana* known to Indians earlier than c. A.D. 500 ? If this white variety of *candana* had been known to Kauṭilya he would not have failed to refer to it in his elaborate account of the *candana* varieties, red, black, greenish, reddish white etc.

(5) C. V. Vaidya in his *Epic India* (Bombay, 1933, p. 139) records a description of Yudhiṣṭhira's daily life as given in Chap. 82 of the *Drona-parvan* of the *Mahābhārata*. This description contains a reference to *sandal-scented water* and *red sandal wood* as will be seen from the following extract :—

"Yudhiṣṭhira rose in the morning and having performed the necessary duties went to the bath-room. One hundred and eight bath servants

9. Shaman Li describes the *Camphor* tree as follows :—"Again there is the *Karpūra* scented tree. It is like the pine in its trunk, but leaves different, as also its blossoms and fruit. When the tree is cut down and full of sap, it has no scent but when it has been cut down and dry, then dividing it through the middle there is found the scented portion, in appearance like mother of pearl and of the colour of coagulated snow. This is what is called *Dragon-brain Scent* (*camphor*)."

In the *Gandhavyūhi* Section of *Bṛhat-saṃhitā* of Varāhamihira (c. A. D. 500) mention is made of *mṃgākarpūra*, *karpūra*, *candana* etc., and *tumbūla*, *pūṣaphala*, *kakkola*, etc.

bathed him with *sandal-scented* water poured out of golden pots after having rubbed him with medicinal preparations. He then wound about his head a swan-white turban in order to drain off the wetness of his head. Besmeared¹⁰ with *red sandal wood* and putting on newly washed clothes and a garland he sat for some time doing his *Japa* facing the east and with his hands clasped in adoration."

Reference is made in the above passage to the *red sandal wood* used for besmearing the body. I would like to know from scholars who have made an intensive study of the *Mahabharata* if they have noticed in this Epic any references to the *white sandal (sveta candana)*.

(6) In the *Kuṣaṇtmata* of Dāmodara Gupta of Kashmir (c. A.D. 756-786) edited by T. M. Tripathi, Bombay, 1924, we find the following references to *candana* :—

Verse 102 — *Candanapaṅkaḥ paṅkeruhanīrabāraghanasāram* "
(*Ghanasāra* = camphor).

Verse 607 — "*Ghanasāra-kunkuma—candana-dhūpadī*"

It is not clear from the above references whether the *sandal* referred to as *candana* was *white* or *red*.

(7) The *Amarakoṣa* (Kāṇḍa II, Chap. 6—*manuṣya-varga*) mentions camphor or *karpūra* in the following line :—

"*Atha karpūramastriyam* |

ghanasāra candraḥambjñāḥ sitābhro himavāluka || 130 ||"

and then mentions the synonyms of *candana* as also its varieties as follows :—

"*Gandhasāro malayajo bhadrasricandano'striyaṃ* | " ¹¹

The *Amarakoṣa* further records the varieties of *candana* as follows :—

"*Tailaparnika goṣṭrṣe haricandanamastriyam* || 131 ||"

Bhānujī Dīkṣita explains :—

"*Tāleti* | *tilaparṇe vrkṣabhede jāta* |

"*Tailaparṇi malayaje śrīvāse sihlake'pi ca*" *iti Medini* | *gob*

10. On p. 156 of *Epic India* C. V. Vaidya observes :—"The people of the South such as Pandya, Kerala and other countries are described as decked with garlands, having red teeth, wearing clothes dyed in diverse colours, and having bodies besmeared with powder (*gandhacūṣpāvactūṣṭh*)"—*Karpaparvan*, XII (17).

11. Bhānujī Dīkṣita (c. A.D. 1630) explains this line and quotes other lexicons *Vivṛa* and *Trikaṇḍaṣeṣa* in support of his explanation of the synonyms for *sandal* viz. *gandhasāra*, *malayaja*, *bhadrasri* and *candana*, (Vide p. 383 of *Amarakoṣa*, N. S. Press, Bombay, 1905).

śiṣamiva | -tailaparnagośiṣau ākarāvasya iti svāmī (=Kṣīrasvāmī
c. A.D. 1050) | harerindrasya candanam | hari kapilavarṇam
candanam | 'Haricandanamastrī syāttridaśānām mahlruhe |
napuṁsakam tu gośiṣe jyotsnā kuṅkumayorapi' iti Medinī || 1 ||
candanaviśeṣānām prthak prthak ||"

Among the four synonyms of sandal mentioned by Amara the synonym *malayaja* (product of the Malaya mountain) may indicate the *white sandal* in view of the testimony of Shaman Li about *white candana* trees growing on Malayagiri¹² recorded in the *Life of Hiuen-Tsiang* pointed by me already.

The *Amarakośa* also records 5 synonyms of *red sandal* :—

"Tilaparṇi tu pattrāṅgam rañjanam raktacandanam | kucandanam ca."

The only variety of *candana* which can be identified with *white sandal* appears to be the *malayaja* mentioned by the *Amarakośa*. We must, therefore, hunt up the antiquity¹³ of this term or its synonyms in Sanskrit literature and allied sources prior to say A.D. 500.

(8) The medical glossary called the *Dhanvantari Nighaṇṭu* supposed to be earlier than the *Amarakośa* refers to *white sandal* (*śveta-candana*) in the following verse quoted by K. M. Vaidya in his *Aṣṭāṅgaḥṛdayakośa*, 1936, p. 214) :—

"Candanam gandhasāram ca mahārham *śveta-candanam* |
bhadrāśīstu *malayajam* gośiṣam tilaparpikam ||"

12. Cf. *Pañcatantra* 1. 41— "Vind malayamañyatra candanam na prarohati"— In the *Aṣṭāṅgaḥṛdayakośa* by K. M. Vaidya, Trichur 1936, p. 429 we find the following remarks on Malaya—

"Malayaḥ, śūtrasthāna 5 parvataviśeṣaḥ, one of the seven principal chains of mountains in India. It is most probably to be identified with the southern portion of the Ghats running from the South of Mysore and forming the eastern boundary of Travancore."

13. Kalidāsa in his *Śākhuntalā* refers to the sandal tree and its natural home the Malaya mountain in Act IV as follows:—

"Kathamidāntam tasyaśakāt paribhṛgāḥ malayatañomtilitā candanalevā deśāstare jīvānta dharayisyāmi |"—Monier Williams (p. 175 of his Oxford edition, 1876) translates this passage as follow:—"How now removed from my foster-father's side like a tendril of the Sandal tree uprooted from the slopes of Malaya, shall I support life in a strange place?"..... Frequent allusion is made to this tree being infested by snakes (see *Raghuvaṇśa*, IV, 46, 48 and *Hirodāśa* p. 158 of Johnson's 1st Ed.)—Shaman Li's remarks support this allusion as we have seen above. Kalidāsa himself refers to black serpent and *Candana* tree in Act VII, verse 182 of the *Śākhuntalā* :—

"Sattvaśāntaśayakuḥ'pidiṣyate | Kṛpāsarpa-śirṣeuevacandanam || 182 ||"

Pliny in his *Natural History* (Book XII (XVIII)) describes trees of countries adjacent to India. In this description he observes:—"There was also a plant with a very strong scent, that was full of tiny snakes whose bite was instantly fatal." (Vide p. 25 of Trans. by H. Rackham, Vol. IV—Loeb Classical Library).

In this verse the several names (*namāni*) of sandal are mentioned. While the term *malayaja* indicates the topography of the region where sandal was produced, the term *svetacandana* indicates its colour. It is possible to identify *malayaja* with *svetacandana* in view of Shaman Li's evidence.

(9) Aparārka (c. A.D. 1100) in his commentary on the *Yājñavalkya Smṛti* (ed. in Ānandāshram Sans. Series, Poona, 1903, Vol. I, p. 483), Chap. I—*Śrāddhaprakaraṇa*, quotes the following verse from *Brahmapurāṇa* which distinctly mentions *svetacandana* (white sandal):—

"svetacandanakarpūra-kumkumāni ca |
vilepanārthaṃ dadyattu yadvānyatpitṭvālabham ||"

It would appear from this reference that the white sandal had become current in India long prior to A.D. 1100.

(10) In the *Bhāvaprakāśa* of Bhāvamīśra (c. A.D. 1550) *dhavalacandana* (white sandal) is referred to in the following line:—

"curnaleśāsavasnehāḥ sādhyā dhavalacandanaiḥ"

(See p. 214 of *Aṣṭāṅghṛdayakośa* by K. M. Vaidya).

(11) In the *Rājanighaṇṭu* of Narahari (c. A.D. 1450) two varieties of *Svetacandana* viz. *veṣṭa* and *sukvaḍi* are mentioned. We are further informed that the hills near the *Malaya* mountain produce *candana* called *Veṣṭa*:—

"Candanam dvividham proktam veṣṭasukvaḍisamjñakam |
veṣṭam tu sārdravicchadam svayam suṣkam tu sukvaḍi ||
malayādṛisamipasthaḥ parvataḥ veṣṭasamjñakāḥ |
tājñātam candanam yattu veṣṭavācyam kvacinmate ||"

(see p. 214 of *A. H. Kośa* by K. M. Vaidya).

(12) Vaṅgasena (between c. A.D. 900 and 1100) is quoted by Hemādri (c. A.D. 1260) in his commentary on the *Aṣṭāṅghṛdaya* (*Cikitsā Sthāna*, Chap. 2—p. 582 of Paradkar Shastri edition, Bombay, 1939). In this long extract we find references to *candana*, *raktacandana* (red sandal) and *sitacandana* (white sandal) in the treatment of *raktapitta* (leprosy). Shri Bappalal G. Vaidya in his *Nighaṇṭu Ādarśa* (Part II, Broach, 1928, p. 346) quotes the following line from Vaṅgasena which refers to *svetacandana* (white sandal):—

"svetacandanakalkena hilaṃcābhavam rasam | pibanmasūrikārambhe ... ||"

(13) Cakrapāṇidatta (c. A.D. 1060) mentions "*dhavalacandana*" in explaining the term *agryacandana* used by Caraka in the following line in *vimanasthāna*, ch. 6. (p. 256 of *Carakasamhitā*) N. S. Press, Bombay, 1941):—

Caraka:— ... kṣaṇe kṣaṇe agryacandanapriyaṅgu ... anugataiśca vāribhiḥ abhiprokṣaṇam"

Cakrapāṇi :—*agryacandanam dhavalacandanam*"

I cannot say how far Cakrapāṇidatta is correct historically in equating *agrya* (best) *candana* of Caraka with *dhava'la candana* (white sandal) known to him.

(14) *Śraṅgadhara Samhita*, a medical work assigned to the 14th century A.D. (between A.D. 1300 and 1400) mentions "*taṅgaracandana*" in its recipe for *satāvartaila* in the following line :—

"*śatāvartī devadāru māmsī taṅgaracandanam.*"

[Verse 710 of *Khaṇḍa* II, Ch. 9 of the Edition (Poona, 1917) by P. L. Vaidya and Y. G. Dikshit.]

The term "*taṅgaracandana*" is translated in Marathi as "*paṇḍhra candana*" (*White Sandal*).

(15) Mammaṭa (c. A.D. 1100) in his *Kavyaprakāśa*, Ullāsa X (p. 789 of the Edition of 1917 with Jhalkikar's commentary) quotes the following stanza¹⁴ as an example of *sāmānya alamkāra* :—

"*Malayajarasaviliptatanavo navahāralatvibhūsitāḥ
sitataradantapatrakṛtavaktraruco rucirāmalāśmukāḥ |
śaśabhrī vitatadhāmnī dhavalayati dharāmavibhāvyetām gatāḥ
priyavasatim prayānti sukhameva nirastabhiyo' bhisārikāḥ || 557 ||*"

In this verse women proceeding to meet their lovers on a moon-lit night are described. Being clad in white from top to toe they are fearless of being detected owing to their whiteness being completely merged in the moon-light. Their garments and ear-ornament and bodies besmeared with the pastes of *sandal* (*malayaja*) are all white. Hence there is no contrast of colours which can mark them out on a moon-lit landscape.

It is clear from the above verse that the colour of *sandal paste* used by these women was quite *white*, consequently the term *malayaja* (sandal from the Malaya mountain) used in the above verse definitely means *white sandal* or *śvetacandana* or *dhavalacandana*. Pandit Jhalkikar in his commentary points out that the above verse "*malayaja* etc." has been quoted by Vāmana (c. A.D. 800) in his *Kavyalamkārasātravṛtti* (Chap. 3 of *Adhikaraṇa* IV). In view of this evidence we are warranted in concluding that the *sandal* known as *malayaja* about A.D. 800 was definitely of white colour and that it came from the Malaya mountain. This evidence confirms the statement of Shaman Li that the sandal tree

14. I am thankful to my friend Dr. K. N. Watave of the S. P. College, Poona, for directing my attention to this stanza.

growing on the Malayagiri was white sandal. Shaman Li's evidence is about 150 years earlier than Vāmana's as Hiuen-Tsiang returned to China from India in 645 A.D. Shaman Li wrote his *Life of Hiuen-Tsiang* as a supplement to his guru's *Record*.

(16) Hemacandra (A.D. 1088-1172) in his lexicon *Abhidhānacintāmaṇi* (III—*Martyakāṇḍa*, verse 302) describes a cosmetic called *yakṣa-kardama* prepared by mixing up *karpūra*, *aḡuru*, *kakkola*, *kastūri* and *candana*. In his commentary he quotes *Dhanvantari* in support of this recipe as follows :—

“*Dhanvantaristu* —

“*Kuṅkumāgurukastūrī karpūram candanam tatha |*
mahāsugandhimityuktam nūmato yaksakardamaḥ ||”

He then gives the varieties of *candana* and explains them as follows :

- (1) Śrīkhaṇḍam—śrīya khaṇḍayati.
- (2) Robhaṇadruma—rohaṇācalasya drumah.
- (3) *Malayaja*—malayādrerjātaḥ.
- (4) Candana—candyate hlādyate anena.
- (5) Bhadrāśrī.
- (6) Phalakti
- (7) Haricandana—hareḥ indrasya candanam or harikapilam va
tacca ati śītam pītam ca śubh.
- (8) Tailaparnika—tailaparni girih akarāḥ asya.
- (9) Gośrīṣa giribhavatvāt gośrīṣaḥ.

He mentions the *red sandal* and its names :—

- (1) Patrāṅga, (2) raktacandana, (3) kucandana, (4) tāmrasāra,
- (5) rañjana, (6) tilaparnikā.

Many of the names in the above list are found in the *Amarakośa* (between A.D. 500 and 800) including the *malayaja*, which I presume is *white sandal* (*santalum album* L.) in view of the evidence of *Shaman Li* (c. 650) and *Vāmana* (c. A.D. 800) already recorded by me.

(17) The *Karaṇḍavyūha*, an early Sanskrit Buddhist-text (Calcutta Edition) contains the following references to sandal (*candana*) :—

Page 56 —“Vividhāni *candana*-karpūra-kastūrikādīni dhārayati |”

Page 60 —“Divyāḥ ca *aḡuru*-drumavṛkṣāḥ *sugandhaḥ* candanavṛkṣāḥ”

(18) The *Bhela Samhitā*, one of the earliest medical texts like *Carakasamhitā*, contains many references to *candana*. I note some of them from the Calcutta Edition, 1921 (ed. by Asutosh Mookerjee) :—

Page 2—“*candanasya* ca yat sārām badarāt khadirasya ca.”

Page 7—*Syāmakāgurucandanam*.”

Page 114 —“*yaścandanamivābhāti*.”

- Page 123 —Mahāpadmataila (Recipe).
 —“darbhavetasamūlāni candanam madhukamibala.”
 Page 174 —“Candanam nilamutpalam.”
 Page 205 —Mūlakataila (Recipe).
 —“vacā cāguru candanam.”
 Page 206 —Rāsnātāila (Recipe).
 —“Candanam paripelavam.”
 Page 214 —Udumbarādīlepa (Recipe).
 —“madhukam candanam tilāḥ”
 Page 217 —“Raktacandanadigdhāṅgāḥ (kāntāḥ).”
 Page 251 —“Candanaisca sapadmakaiḥ”
 Page 264 —“Candanam padmakam caiva.”
 Page 267 —Drākṣā madhukacandanaiḥ.”

The above references clearly show how *candana* had become a recognised item of the *materia medica* of the time of the *Bhela Samhita*. It was freely used in the preparation of some medical oils like *rasnātāila*, *mahāpadmataila*, *mūlakatāila* etc. These references, however, do not give us any idea about the species of *candana* used for these preparations.

(19) Another early medical compendium viz. the *Kāśyapa Samhita* (ed. by Rajaguru Hemaraja of Nepal, N. S. Press, Bombay, 1938) contains numerous references to *candana* as will be seen from the extracts noted below :—

- Page 73 —(*Balagrahacikitsita*)
 —“tāḥ sapatram naladam tathā candanasāriṇa

 etaistailam samam siddham etc.”

Page 133 —(Chapter on *dhūpakalpa*)¹⁵ —Recipe for *vārūṇa dhūpa*.

15. This chapter is important as it gives recipes for the following *dhūpas* which were current about 2000 years ago :—Kaumārādhūpa, māheśvarādhūpa, āgneyādhūpa, bhadrāṅkara-dhūpa, rājaghnadhūpa, uttamādhūpa, darśakādhūpa, mohadhūpa, vārūṇadhūpa, caturāṅgi-kadhūpa, śaṇḍakadhūpa, kapādhūpa, śrīdhūpa, grāhaghna dhūpa, pūṇyadhūpa, śiśūka dhūpa, brāhma dhūpa, prāsthīdhūpa, siddhārthakadhūpa, arīṣadhūpa, gaṇadhūpa, svasṭikadhūpa, gṛhādhūpa, etc. The text refers to forty kinds of *dhūpas* (p. 135) :—

“Siddhārthārthāceti dhūpāstecaturāṅgāradadāhātāḥ |
 bhūṣaṇpiddhikā nāṅām potradā rogaṇḍānāḥ ||

These *dhūpas* or different kinds of incense were used not only for medical purposes but also for scaring away demons etc. who were supposed to cause ill health. They had also some value as perfume as some of the ingredients used in them were aromatic. The chapter on *dhūpakalpa* is concluded with the story about the origin of the *dhūpas* :—The *Rṣis* were disturbed in their penance by *rākṣasas*. They approached *Vaṇhi* (Fire) for help. *Vaṇhi* gave them these *dhūpas* as a means to scare away these *rākṣasas*.—This is a mythical story about the origin of *dhūpas* with a religious background. Then follows a *dhūpa-japa* :—
 “Agnisvā dhūpayato, brāhma tvā dhūpayato..... namodevebhyas itijapet.”

- “Smṛtaṁ śrīveṣṭakā...ra lākṣāpadmaka-candanam ||
sadevadāru surasaṁ śālajam ceti yojayet |
dhūpo'yaṁ vāruṇo nāma gṛīmakāle praśasyate.”

Page 280 — (Śatikopakramaṇīya—adhyāya).

- “sārivā candanośīradrākṣāpadmakasūdhitām |”

- “candanasya ca kalkena siddham sarpirjvarāpaham || 124 ||
Candanādyena siddham paṭolādyena vā ghṛtam | pāyayet...”

Page 283 — “kalkena sārivā śuṇṭhī lodhradādimā-candanaiḥ.”

Page 290 — (kukkuṇacikitsita)

- “Sarpimaṇḍaṁ suriḥ gram ca aindrīm candanameva ca”

Page 297 — (Visarpacikitsā)

- “Guḍūcīm madhukam caiva candanam ceti tat pibet”

- “Uśīram candanam caiva śāḍvalam śaṅkhamutpalam”

- “Hṛlberam candanośīram etc.”

- “Vidārīm candanośīram tathā candanasārivām”

- “Paṭolanimbamustānām candanośīrayorapi”

Page 298 — “Tālīsaṁ.... candanadvayam.”

- “Mūlāni candanośīram.....”

- “Kalkaiḥ....candanānām vipācitam.”

Page 304 — (Pittacarmadala cikitsita)—*carmadala* is a kind of leprosy
or cutaneous disease.

- “śuklā candanarasāñjana...”

- “yaṣṭīmadhuka-candanakalko vā.”

- “candana-bhadramustā...”

- “candanośīrakalko vā.”

- “candanakṣīra kakolī...”

Page 313 — (Śothacikitsita).

- “abhaya...madhucandanaiḥ.”

Page 316 — “ubhe haridre...yaṣṭīmadhukacandanaiḥ.”

Page 317 — (Śulacikitsā).

- “...śayyām...candanāmbuprasikṭām.”

Page 324 — (“Aṣṭajvaracikitsā).

- “candanagurubāhika...”

- “sacandanayavośīra...”

Page 60 — “raktapuspāmbaṛadhara raktacandanarūṣitā.”

Pags 105 — (Dhatricikitsita).

- “tvakpatram candanośīram.”

The extracts show how *candana* was prescribed against several diseases in ancient India but unfortunately they do not reveal what particular species or variety is meant by the term *candana* used in them. The *raktacandana* is of course different from *candana*. On page 298 the expression

"*candamaduvayam*" is used but it is difficult to say whether it means (1) *candana* and (2) *raktacandana* or two varieties of *candana* itself.

(20) Principal Bappalal G. Vaidya in his *Nighaṇṭu Ādarsa* (Broach, 1928, Part II. p. 345) records the following references to *candana* from the *Caraka-Saṃhitā* :—

- (i) *Raktapitte* — "*candanatulyabhṛṅgikāḥ*" (Ciki. ch. 4).
- (ii) *Raktārsasām* *snigdharaktasaṃgrahaṇe* —
— "*saṃśārasācandanarasaśca* ||" (Ciki. ch. 9).
- (iii) *Hikkāyām* — "*nāvayeccandanam vāpi*" (Ciki. ch. 21).
- (iv) *Vamane* — "*Dhāttrīrasenottamacandanam vā*" (Ciki. ch. 23).
- (v) *Raktātisāre* — "*candanamtaṇḍulāmbhaṣa*" (Ciki. ch. 10)

References from the *Sūtrata Saṃhitā* recorded by Vaidya are :—

- (i) *Pradare* — "*candanakvāthameva vā* (Śāstra ch. 2).
- (ii) *Śukramehe* — "*kaṣṭhubhacandanakaṣāyam vā* (Ciki. ch. 11)
- (iii) *Mañjisthamehe* — "*mañjisthācandanakaṣāyam*" (Ciki. ch. 11).

These references to *candana* do not give us any particulars about the exact variety of *candana* which was used in medical practice 2000 years ago. The terms "*uttamacandana*" used by Caraka in *Chikitsā*, Chap. 23 corresponds to the term "*āgracandana*" used by Caraka in *Vimāna** Chap. 6. Dallaṇa explains this term as "*dhavalacandna*" or white sandal.

(21) Patañjali (c. 150 B.C.) in his *Vyākaraṇa Mahabhāṣya* comments on the sūtra of Pāṇini (2.2.8) — "*Tatsthaiśca guṇaiḥ* || 2 ||" as follows :—

"*Ṣaṣṭhiguṇaiḥ ṣaṣṭhi samasyate iti vaktavyam | brāhmaṇavarṇaḥ candanagandhaḥ patahaśabdāḥ nadighoṣaḥ*" (see page 413 of Kielhorn's Edition, Vol. I. Bombay, 1892). It is clear from this reference that a scented variety of *candana* was current in India about 150 B.C. as the term "*candanagandha*" (odour of sandal) indicates. This reference is in harmony with the references to *candana* in the early medical sāmhitās of Caraka, Sūtrata, Bhela and Kaṭyapa recorded by me already.

(22) In the *Word-Index* to Pāṇini-Sūtra Paṭha and Pariśiṣṭas (B.O.R. Institute, Poona, 1935) the following references to *candana* are noted from *linganūśasana* and *gaṇapāṭha* only :—

- (i) *gaṇapāṭha* (pp. 384 and 703) — "*candana* 217, 5."
- (ii) *linganūśasana* — "*candana* 76".

The Index does not record any references to *candana* in the *Kaṭyāyanaśāstra*. *Aṣṭādhyāyī*, *Dhātupāṭha*, *Śakāṣayanasaḍhitāśabdāḥ* and *Phīṣṭātra*.

(23) No references to *candana* are found in the *R̥gveda*, *Atharavaveda*, *Yajurveda* and *Sāmaveda*. I have consulted the Indices to these texts but failed to find any references to *candana* in them.

(24) I have already pointed out some references to *candana* in the *Mahabharata*. I note below a few references to *candana* from the *Rāmāyaṇa* (ed. with Marathi Trans. by S. D. Satavalekar, Aundh) Ayodhyākāṇḍa (1942) :—

Page 21 — "Antaḥpurasya dvārāṇi sarvasya nagarasya ca || 13 ||
Candanastagbhirarcyantām dbūpaiśca ghr̥ṇṇābāribhibh"
(Ayo. 3'13).

Page 120 — "Varāharudhirābheṇa śucinā ca sugandbinā |
Anuliptaṁ parārdhyena candanena param̐tapam ||"
(A. Sa. 16'9).

Here the *candana* paste used for besmearing the body is stated to be of the colour of the blood of a boar and highly scented.

Page 105 — "Candanāgurudbūpaiśca sarvataḥ paridbūpitām || 28 ||
tām purīm samatikramya ... " (A. Sa. 14'28).

Page 127 — "Rājamārgaṁ yayau Rāmo madhyenāguru-dbūpitām || 3 ||
Candanānām ca mukhyānāmagurūṇām ca samcayaiḥ"
(A. Sa. 17'3-4).

Page 128 — "Dadarśa taṁ rājapathaṁ divi devapatiriyatā || 6 ||
dadhykṣata-bavir̥lājaidbūpairagurucandanaibh"
(A. Sa. 17'6-7).

Ayodhyākāṇḍa (uttarārdha) 1942 —

Page 57 — "Haricandana¹⁶ sampr̥kṣtemudakam" (A. Sa. 65'8).

88... "Candanāgurusaṁpr̥kṣtadbūpasam̐murchito' malaḥ |
pravṛti pavanab ... || 29 ||" (A. Sa. 71'29).

Page 231 — "Candanena mahārheṇa yasyāṅgamupasevitam"
(A. Sa. 100'35).

Page 311 — "Candanāgurugandhaśca na pravṛti samantataḥ || 20 ||"
(A. Sa. 115'20).

— "Candanāgurugandhāśca mahār̥bhāśca vanastrajāḥ || 22 ||"
(A. Sa. 115'22).

The few references to *candana* in the *Rāmāyaṇa* collected above show

16. The *Śārada Kosa* (ed. K. G. Oks, Poona, 1918) of about A.D. 600 refers to *haricandana* as follows :—

"kuśkumedeḥ devav̥kṣe ca Haricandanam̐yate" (p. 39).

kuśkuma = saffron ; *devav̥kṣa* = *mandara* tree (Apte's Dictionary).

how it was used as a perfume in social and domestic life of people living in the city as also at the royal court. These references also are not very helpful in our inquiry about the species of *candana* used for several purposes such as perfuming water, burning as incense, perparing paste for besmearing the body etc.

(25) In the *Manasollāsa* (c. A.D. 1130) of the Cālukya King Someśvara (G. O. Series, Baroda, Vol. II, 1939. pp 85-87) there is a section called the *vilepanabhoga* on the King's use of cosmetics and unguents etc. such as (1) *yakṣakardama*, *sandhyalepa*, *pumllingagandha*, etc. The *sandhyalepa* is meant for the removal of the odours of body sweat. The root of the *candana* tree to be used for this paste is described in detail as follows :—

"*Candanasya tarormūlaṃ granthikoṭaka (ra) karparam* || 984 ||
gandhotkaṭaṃ himasparśaṃ variṣṭhaṃ tannirāpitam |
yacchedadraktatūṃ dhatte gharṣe pītatvameva ca || 985 ||
śoṣe śubhratvamāyāti svāde tiktaraśaṃ bhavet |"

The sandal root described above is extremely scented and cool to the touch as ice; when cut it appears *red*, when it is rubbed (on a stone) it assumes *yellow* colour, but when it is dried up it becomes *white*. — Is this a description of the root of the *white sandal* (*santalum album*) ?

(26) The poet Bāṇa (C. A.D. 630) refers to *malayaja* in his *Kadambaṛi* (page 316 of *uttarabhāga* — B. S. Series) in the following line :—

"*Malayajalādrapadmiṇīpatrāstarāṇa*."

This line mentions "a bed of lotus leaves wet with sandal (*malayaja*)-water". Possibly *malayaja* means here the *white sandal*. I may note here some more references to *candana* from the *Uttarabhāga* of *Kadambaṛi* :—

Page 241 — "*Karpūrakṣodamīracandanapaṅkapiṇḍa*."

Page 248 — "*Haricandanarasacarcām*."

Page 251 — "*Sarasabharicandanapaṅkacchaṭāchūraṇa*""

Page 253 — "*Lalāṭaphalakena candanalekhibikām*."

Page 255 — "*Candanaparimala iva*"; "*sarasabharicandana*."

Page 256 — "*Bhujangiva asahyasamtāpālīṅgitacandana*."

Page 269 — "*Pūrvadigvadhūvanacandanatilake*."

Page 269 — "*Līmpadbhiriva sāndracandanadraveṇa yāminīm*"
 (*candrapādib*).

Page 281 — "*Toraṇābaddhacandanamālam* "

Page 283— (Description of *jalamāṇḍapa*).

— "*Karpūrapaṭavāsabharicandana*"; "*candanāṅgarāgam*."

Page 299 — *Haricandanacarcā*."

These and other references to *candana* in Bāṇa's works fully illustrate the varied use of *candana* in the 7th century A.D.

(27) Dhanapāla in his lexicon *Pāliacchināmamālā* (A.D. 973) mentions "*Malayaruha candanam*" (vide folio 4. MS No. 185 of 1872-73). The term "*Malayaruha*" is identical with "*malayaja*," which according to my view is *white sandal* growing on the *Malaya*¹⁷ mountain.

(28) The (*Prākṛit Dictionary*) *Pāliśaddamahāṇaya* (by Har Govind Das) records the following usages of *candana*.

Malaya = śrikhaṇḍa (— *Jivāitvābhigamasūtra*. 3) = *candana*.

Malaya bhava = *Candana* (*Gauḍayaho* — Between A.D. 729 and 753).

Malayaruha = *Candana* (*Surasundarīcarī*, 1, 28 — C. A.D. 1090).

Candanakāṣṭha (*Pāliacchināmamālā* — (A.D. 973).

(29) Varāhamihira (c. A.D. 500) in his *Byhatsamhita* refers to *candana* and *Malaya* (*Malayaja*) in the following extracts from J. H. Athalye's edition of *Byhatsamhita* with Marathi Translation (Ratnagiri, Jagannithra Press, 1873):

chapter on cosmetics (No. 78 — *gandhayukti*)

verse 7 — "Kuṣṭhenotpalabandhikāḥ *śamalyaḥ* Pūrvobbaveccam-pako"

verse 8 — "*Malayapriyaṅgubhāgau gandho dhūpyo gūḍanakbena*"

verse 9 — ".....Turuṣkanakhacandanaiḥ piṇḍaḥ"

verse 14 — "*Karpūracoramalayaib*"

verse 24 — ".....*malayanakhaśrikakudurukāḥ*"

verse 30 — "*candanaturuṣkabhāgau*....."

It is clear from these references that *candana* and *Malaya* i.e. the *sandal* growing on the *Malaya*¹⁸ mountain were used in Indian cosmetics in Varāhamihira's time. Possibly Varāhamihira distinguishes *malaya* (=white sandal) from *candana* in general.

Candana was also used for making furniture. In Chap. 79 (*Śāyāsana-lakṣaṇa*) of the *Byhatsamhita* the use of *candana* as timber is prescribed

17. The *Mahabharata Aranyaka Parva*. — B. O. R. Institute Critical Edition. 3 297, 14 (Page 1027) refers to the *malaya* mountain in the following verse:—

"Himavān pāriyātracā vindhyo *malaya* eva ca |
catvāraḥ parvatāḥ kena pātītā bhūvi tejaś ॥ 14 ॥"

18. Varāhamihira refers to *Malaya* mountain in Chapter 14, verse 11 as follows:—

"Atha dakṣiṇena laṅkājīon-Saurikṛtṛpa-tālikāṣṭh |
Girīnagara-malaya-dardura-mahendra-māliedya-bharukacchāḥ ॥ 11 ॥"

in the following extracts for preparing beds and seats (Śayana and Āsana) :-

verse 2 — "Aśana-syandana-candana"

verse 12 — "Candanamayo ripughno....."

verse 18 — "Amba-syandana-candanavṛkṣaṇāṁ"

In Chap. 16 (Candana) we are told that the planet Bhṛgu or Śukra (Venus) governs materials like grababhaktayab etc. (verse 80 — "Jatiḥ phalāgaruvacpippalyaścandanam ca bhṛgob").

(30) In the Sanskrit Buddhist text *Āryamañjuśrīmūlakalpa*, Trivandrum Sans. Series, 1920) there are many references to *candana*. According to Winternitz this work was translated into Chinese between A.D. 980 and 1000 and into Tibetan in the 11th century (p. 397 of Vol. II of *History of Indian Literature*, Calcutta). According to Marcelle (ibid p. 635) this work belongs to the 2nd century A. D. Whatever be the exact date of the work we must take it to be prior to c. A.D. 900 in view of its Chinese translation between A.D. 980 and 1000 referred to by Winternitz. The Trivandrum edition of this text contains the following references to *candana* and *Sveṭa-Candana* (white sandal) :-

Page 13 — "Gandhemādanab simantāyatana-samantaprabha-candana etc." (Here "candana is the name of Pratyekabuddha in the mahāparjānmaṇḍala)

Page 27 — "Saptābhimantritāṁ candanodakam" (Sandal-water)

— "dhūpamantraḥ 13 candanam karpūraṁ kuṅkumaṁ caikt-kṛtya dhūpam dāpayet"

— "karpūra candanakunkumaiḥ" ("gandhamantraḥ cātra bhavati namah sarvabuddhānām" etc.)

Page 37 — "Pañcagavyasammiśritena candanakarpurakuṅkumodakena" etc.

Page 38 — "candana-karpūra-kuṅkumavyāmiśrakena śvetasugandha-puspaib" etc.

Page 47 — Ābūtānāṁ karpūra-kuṅkuma candanamisraṇāmaṣṭasaḥsraṁ jubuyāt"

Page 48 — "Tathāgatakule candanam.....śasyate"

Page 49 — "Sugandhacandana-kuṅkumābhyaktaena paśena maṇḍalaṁ praveśtukānāṁ mukhaṁ veśayitvā" etc.

Page 50 — "Candanakuṅkumābhyāṁ hastau mrakṣayitvā"

Page 52 — "Candana-kuṅkumodakena abhyaśīlceṭ"

Page 56 — "śvetacandanam kuṅkumodakam.....śvetacandanakuṅkumakarpūram ca ekikṛtya....."

Page 57 — "aprasādyāḥśaśmuttham vā kuṅkumacandanadibhiḥ I"

- Page 58 — "*Śvetacandanakunkumābhyāmanyatarena anulopāṅgāṁ karpūravāsītavadanam*"
- Page 60 — "*Śvetacandanalīptāṅgab hastau uddhṛtya śilpinah* 1"
- Page 61 — "*Tatpāṣaṁ* *karpūrakunkumacandanādibhirāṅgaṁ vāsāyitavyaṁ*"
- Page 74 — "*Candanakunkumakarpūraṁ ca ekikṛtya*"
- Page 84 — "*Śvetacandanakunkumābhyaktānāṁkhadirakṣṭṣabhaiḥagairṁ prajvālyā*"
- Page 86 — "*Nāgakesarakiñjalkābutināṁ śvetacandana-karpūravāyā-miśraṇaṁ*"
- Page 87 — "*Nāgakesaracūṣṇaṇaṁ śvetacandanakarpūravāyāmiśraṇaṁ*"
— The *sādhaka* is to perform the *homa* at different places among which we find the *Malaya* mountain :—
"*Sahye Malaye caiva arbude gandhamādana | tṛkṛte parvatarājē. smiṁ sādhayet karmamuttamaṁ* 1"
- Page 90 — "*Uśtraśvetacandanakunkumaṁ vā karpūradibhivyatimīśrayitvā*"
- Page 107 — "*Karṇikārapuṣpāṇaṁ śuklacandanamīśraṇaṁ...śatasa-harāpi juhuyāt*"
- Page 111 — "*Candanaḥ, gandhamādanaḥ, ketuh, suketub, sitaketu-ṣṭopārinemiśca*" (8 *pratyekabuddhas*)
- Page 121 — "*Prāśastairvamakāiścāpi śvetacandanakunkumaib | prakṣālyā yatnato tasmāt.....*"
- Page 137 — "*Śvetacandanakarpūraṁ kuṅkumaṁ miśrapūjitaḥ* |"
- Page 138 — ".....juhuyātkuṅkumacandanaṁ"
— "*śvetapadmāṁ samāhṛtya śvetacandanasaṁyutāṁ*"
- Page 139 — "*Nāgakesarakarpūraṁ candanaṁkuṅkumaṁ samam* |"
- Page 144 — "*Śvetacandanakarpūrakunkumacca vidhiyate*"
- Page 145 — "*Śvetacandanakarpūrakunkumaṁ ca ekikṛtya*"

The wealth of references to the *Śveta candana* or *Śukla candana* (white sandal) in the *Aryamañjuśrī-mūlakaḥpa* pointed out in the above extracts clearly proves that this white variety of sandal had an honoured place, along with *karpūra*¹⁹ and *Kunkuma* (camphor and saffron), in Buddhist

19. Faudt G. S. Sadhle in his *Upaniṣadvāyamahakosa* (pūrvarūpa), Bombay, 1940 on p. 141, records the following quotations from the *Śaṇḍilyopaniṣad* and *Yogarishabhōpiniṣad* which mention Camphor (Karpūra) :—

— "*Karpūremanale yadvat*" (*Ś'ṇḍi.* 1-7-21)

— "*Karpūre līyamāne kiṁ bhīṣṇyaḥ tatra vidyate* (*Yo. Ś'.* 1-1-49). Jacob's Concordance to *Upaniṣads* records no reference to *Karpūra*,

ritual and worship long prior to A.D. 900. The *Karaṇḍavyūha*, as already pointed out by me refers to *candana* only but does not mention the *Śveta-candana*. In my cursory perusal of the *Āryamañjuśrīmālakalpa* I could not trace any reference to the *malayaja* sandal though this text refers to the *Malaya* mountain along with *Sahya* and other mountains.

(31) In the *Saundarananda* of *Aśvaghōṣa* (2nd century A.D.) edited by E. H. Johnston, Lahore, 1948, I find the following references to *canadana* and *Lohitacandana* :—

Page 19 — "Nīścitamatirasi *candanayoma jagāma* duḥkhasukhayaṁśca vikriyāṁ"

Page 27 — "Tatstanodvartitacandanābhyāmukto bhujābhyāni na tu mānasena"

Page 136 — "Praverito *lohitacandanā* haimo mahāstambha ivāvabhāse"

(32) Vatsyayana in his *Kāmasūtra* (ed. by Kedarnath, N. S. Press, Bombay, 1900) refers to *candana* in the following extract :—

— "Tathā *candana*-Kuṅkumayob pūgaphalānāṁ patrāṇāṁ kālayukṭānāṁ.....dānāṁ....."

(33) We have already referred to Kālidāsa's reference to *candana* plant on the *Malaya* mountain in his *Sakuntala* (Act IV). In his *Vikramorvaśīya* (N. S. Press. 1914 p. 60) Act III, verse 10, he refers to the *Malayaja* sandal used for smearing the body as follows :—

— "Kusumaśayanāṁ na pratyagrām na candramaricayo, na ca *malayajam* sarvāṅgīṇāṁ na vā maniyaṣṭayab"

(The commentator Raṅganātha observes :—

"Sarvāṅgīṇāṁ sarvāṅgavyāpi *malayajam candanam*."

In the *Rtusamhara* of Kālidāsa (ed. by S. R. Sehgal, Lahore, 1944) we get the following references to *Candana* :—

1-2 — "Sarasāṁ ca *candanam*", 1-4 — "stanaib *sacandanaiḥ*"

1-6 — "Payodharāḥ *candanapaṅkacarcitāḥ*"

1-8 — "Sacandanāmbuvayanodbhāvānilaiḥ" "breezes produced by fans wet with sandal water"

2-21 — "Kālāgurupracuracandanacarcitāṅgayab (nāryab)"

3-20 — "Hārāib *sacandanarasaib*.....vibhūṣayanti"

5-3 — "Na *candanam* candramaricīṣṭalam"

6-12 — "Ālipyate *candanamaṅganābhiḥ*"

6-6 — "Staneṣu hārāib *sitacandanārdraḥ*" — This reference to *sitacandana* or white sandal is important for my suggestion that *malayaja* sandal is identical with white sandal. Kālidāsa uses the terms *malayaja*, *sitacandana* and refers to the association of the *malaya* mountain with *candana* and the serpents, who live in the vicinity of the *candana* plant.

VI, 28 — malayānila (breeze from the *Malaya* mountain).

(34) In the *Travels of Fa-hsien* (399–414 A.D.) translated by H.A. Giles (Cambridge, 1923) we find the following references to sandal :—

Pages 30-31 — “when Buddha went up to heaven for ninety days to preach the faith to his mother, king Prasenajit, longing to see him, caused to be carved^m in sandal-wood from the Bull's head mountain an image of Buddha and placed it where Buddha usually sat.”

(Perhaps the sandal-wood from the Bull's-head mountain is the *go-strja* sandal).

Page 72 — (Description of Ceylon)— ‘Sandal-wood, garoo-wood (lign-aloes), and all kinds of scented woods were placed at the top’ (of the funeral pile of wood).

(35) In I-tsing's *Record* (A.D. 671-675) translated by J. Takakusu, Oxford, 1896, sandal-wood is referred to in the following extract :—

Page 149 — “The scent is prepared as follows : take any perfume tree, such as sandal-wood or aloes-wood, and grind it with water on a flat stone until it becomes muddy, then anoint the image with it and next wash it with water.”

(36) Reference to sandal-wood and its perfumes as mentioned in the Buddhist Jātakas (between B.C. 300 and A.D. 400) have been recorded by R.N. Mehta in his *Pre-Buddhist India*, Bombay, 1939, as follows :—

Pages 202-203 — “Sandal-wood, especially *Kasika-candana*, was the chief raw material and also a finished product in itself. (*Jataka* V, p. 302. G 40; I, p. 331). Sandal-wood-powder and oil were manufactured (*Jataka* I, pp. 129, 238, II, p. 273; IV, p. 82; VI, 336).”

(37) In the *Guhyasamajatantra* (G. O. Series, Baroda, 1931) which its editor assigns to about 3rd century A.D. we get references to *candana* (sandal) and *karpura* (camphor) and *kunkuma* (saffron) as follows :—

Page 8 — “Karpūracandanairyuktāṁ gulikāṁ trilohaveṣṭitāṁ.”

Page 99 — “Karpārakunkumairyuktāṁ gulikāṁ” etc.

20. Shuman Li (c.A.D. 650) in his *Life of Hsuen-Tsang* also refers to carved figures of Sandal wood as follows :—

Page 91 — “.....carve from sandal-wood a true likeness of his (Buddha's) appearance.”

Page 93 — “King Udayana had caused a sandal-wood figure to be made.....”

Page 213 — “Treasures from India taken by Hsuen-Tsang in A.D. 645” Sandal-wood figure of Buddha” (with pedestal 3 ft. 5 inches high).

Page 214 — “Sandal-wood figure of Buddha” (with a pedestal 1 ft.—3 inches high). It is clear from the evidence of *Fa-hsien* and others that the art of carving images etc. from Sandal-wood now current in Mysore etc. has a clear antiquity of more than 1500 years.

(38) The *Lalitavistara* (ed. by Rajendralal Mitra, Bib. Indica, Calcutta, 1877) contains the following references to the *candana*²¹ :—

Page 19 — "Tasyaḥ sarvaromakapebhyah *candanagandhaḥ* pravāti"

Page 513 — "Divyāḥ *candanacūṭra*ḥ"

Page 501 — "Ya ratnapātri abhūta *candanamiśri*pikāḥ"

(39) Mr. Tapo Nath Chakrabarty in his article on "Women in the Early Inscriptions of Bengal" (*B.C. Law Volume* II, 1946, pp. 242-260) records valuable information about women in Bengal during a period of more than 750 years (A.D. 432-1200). In this information he refers to the use of aromatic ingredients as follows :—

Page 257—"Fashionable ladies were thus in the habit of using *musk* and other aromatics like *camphor*, *SANDAL* etc. for their decoration.

Cf. ("Karpurairiva puritam) *malayajakṣodairivalepitam*"

— [v. 8 of *Kṛṣṇadvārika* Temple

Inscription].....we have reference in the Deopārā Inscription (verse 31) to the use of *sandal powder*."

The reference to *Malayaja* (*white sandal*) used by the women of Bengal as found in an inscription is noteworthy for the history of *sveta candana* (*white sandal*) in India.

(40) The *Ahīrbudhnyā Samhita* (ed. M. D. Rāmānujācārya, Adyar, 1916) refers to *candana* and *raktacandana* as follows :—

Page 344 — "Bhūrajapatre likhetvaitatkuṅkumaiś*candanena* tu"

Page 279 — "*raktacandananalīptāṅgaṃ* devaṃ padmaḥ samarçayet"

Page 387 — "*candanagurukarpurakāśmīraksodamaṇḍitam*"

(41) Marco Polo in his *Travels* (ed. by Thomas Wright, London, 1901) A.D. 1298 describes the island of *Nocueran* (one of the *Nicobar* islands). In this description he refers to the *white* and *red* kinds of *sandal* as follows :—

Page 376—"Their woods abound with the noblest and most valuable trees, such as the *white* and the *red sandal*", etc.

(42) Col. G. A. Jacob in his *Laukika Nyāyāli* (Handful of Indian Maxims) Part III, N. S. Press Bombay, 1911, p. 46, records an interesting

21. The *Yogavṛṣṭi* (a) (*nirvāpa prakaraṇa* *ottarārḍha*—sarga 66, verse 9) refers to the *white moon-light* and compares it with the *white Candana paste* :—

— "Candraścaṇḍacaturdikkaṃ *candanenātmatejaś* |
racayanātrīrohinīyostamo bantayapi hṛdgatam || 9 ||"

(Vide p. 4861 of *Acarya Magazine*, Benares—*Jyotiṣa*—*Āṣāḍha* Number, 1947).

simile based on *candana* from the *sūtras* of *Bādarāyaṇa* and the comments of the great philosopher Śaṅkara on it as follows :—

"*Candananyayaḥ*

The simile of *sandal-oil*. Bādarāyaṇa uses this as an illustration in *sūtras* 2 3, 23, 24. As the application of a drop of the oil to one part of the body produces a pleasant sensation in the whole of it, so soul, abiding in one part, namely in the heart, is yet perceived as present in the entire frame. Śaṅkara's exposition of the former *sūtra* is as follows :—

Yathā *haricandanabinduḥ śarīraikadeśasambaddho'pi san sakaladehavyāpinamālāhūdaṁ karotyevamātmāpi dehaikadeśasthaḥ sakaladehavyāpinimupalabdhiṁ karisyati tvaksambadhāccāsyā sakalāśarīragatā vedanā na virudhyate | tvagātmanoh sambandhaḥ kṛtsnāyām tvaci vartate | tvak ca kṛtsnāśarīravāpinIti"*

In this explanation Śaṅkara presumes *candana* of Bādarāyaṇa to be identical with *Haricandana* (yellow sandal). I cannot say how far this presumption is correct as Śaṅkara lived in the 8th century A.D. while the *sūtras* of Bādarāyaṇa are a few centuries earlier in date than Śaṅkara.

(43) The Kashmirian poet Bilhaṇa in his poem *Vikramāṅkadeva-carita* (ed. by Bühler, B. S. Series, Bombay, 1875) composed about A.D. 1085 describes the warlike expeditions of King Vikrama of Kalyāṇ. In this description he states that Vikrama destroyed the *sandal wood forests* of the *Malaya* hills and slew the lord of Kerala (Canto IV, verses 1-18).

Other references to *candana* in this poem are :—

Page 12 — "*Candanalepapāṇḍubhiḥ.....stanaiḥ*"

Page 17 — "*Ādracandanam*"

Page 26 — "*Malayādrikuṇja*" and "*candanavāyu*"

Page 28 — "*Malayadrumāḥ*", "*candanavāyu*", *candananisyaṇḍa*"

— "*gajonmūlitanikṣiptacandanadrumasampadaḥ*"

Page 46 — "*Candanarasa*"

Page 59 — "*Candanapallavānām*"

Page 62 — "*Candanādreh*"

Page 74 — "*Candanapaṅkavāpi*"

Page 83 — "*Candanapāṇḍavānām*" *malayānilāḥ*"

Page 97 — "*Candanalepa*"

— "*Kṣīpyatām Kvacana candanapāṇḍucandrikasabbarāḥ kalaśibhiḥ*"

Even if the description of the sandal-wood forests on the *Malaya* mountain and their destruction by the elephants of Vikrama is considered as poetical bombast it cannot be denied that in Bilhaṇa's time the *Malaya*

mountains were producing a large number of *candana* trees. My suggestion that these *candana*²² trees were of the white sandal gets confirmation from Bilhana's use of the term *pāṇḍu* (whitish) as applied to *candana* in the expressions "*candanalepapaṇḍubhiḥ*" breasts...appearing whitish by the sandal paste) and *candana paṇḍuḥ candrikā rasabharat* (moonlight whitish on account of the *candana* paste). I am inclined to suppose that in Bilhana's time (11th century A. D.) the white sandal was extremely popular in India and had perhaps put into the background the other varieties of *candana* of different odours so minutely described in the *Arthaśāstra* of Kauṭilya.

(44) In the *Harivaṃśa* (ed. with Marathi Trans. by Viṣṇuśāstri Bapat, Wai, 1911) we notice some references to *candana*, some of which may be noted below :—

Page 16 — "*Harivaṃśanāhātmya*)

— "*Candanagurukarpūrakuṅkumairgandhakāḍibhiḥ* || 12 ||"

Page 301 — "*Viṣṇuparva*-chap. 89)

— "*Rajobhiḥ sarvapuspāṅkṣaṁ prkṛtaścandanaśaitiabhṛt* || 73 ||"

— "*Reme balāścandanapankadigdaḥ* (verse 1)"

Page 301 — "*Viṣṇuparva*, chap. 70, verse 71)

— "*Hārāścamaṇayaścaiva candanānyagurūṇi ca*"

(45) In the *Śārngadharpaddhati* (ed. by Peterson, Bombay, 1888, vol. I, pp. 468-9) we get the following references to *candana*, *Malaya* and *Malayaja* :—

	Stanza	3255 — malayaja
Dhūpāḥ {	"	3256 — candana
	"	3257 — candana
	"	3259 — malaya (= Malayaja)
	"	
Dhūpavartib	"	3260 — candana
Dīpavartib {	"	3262 — malaya (= malayaja)
	"	3263 — candana

(46) Mr. C. E. Fischer published in 1938 a very scholarly article on "Where did the sandalwood tree (*Santalum Album* Linn.) evolve?" in the *Journal of the Bombay Natural History Society*, December 1938) pp. 458-66. In this article he has recorded evidence in favour of an

22. In Bilhana's *Courapañcika* (ed. by S. N. Tadpatrikar, Poona, 1946, p. 4) we get a reference to *Candana* in the following stanza 8 :—

— "*Adyapi tūṁ mastpacandanopāṅkamir'rahasṭ'urikṣiparimalottibhavisarpi-gandhāḥ*"

Indian origin of the white sandal (*santalum album*) and that opposed to an Indian origin. I give below a brief analysis of this evidence :—

I — Evidence in Favour of an Indian Origin.

- (a) *Ramayana* refers to forests of sandal on the islands of the river *Tamraparni*.
- (b) In his epic poem *Chilappatikaram Ilanko-Atikal*, the Tamil poet (between 2nd and 5th cent. A.D.) speaks of sandal born in the Southern Mountain (*Malaya Tenmalai piranta chantanam*).
- (c) *Kalidasa* (not later than 5th cent. A.D.) refers to sandal, derived from South India (see *Raghuvamsha*, IV, 48, 51).
- (d) *Pañcatantra* (not later than 5th cent. A.D.) refers to sandal, as not flourishing any where except on *Malaya*.
- (e) *Rajasekhara* (A.D. 880-920) in his *Kavyamīmāṃsa* speaks of the *Malaya* mountain as the homeland of the delightful true sandal.
- (f) *Hitopadeśa* (II, 163) refers to sandal trees infested by serpents.
- (g) The *Periplus of the Erythraean Sea* (2nd cent. A.D.) refers to "... sandal wood, teak, ebony and black-wood, imported from Baragaza (Broach) in Western India to Apologus, an important harbour at the mouth of the Euphrates."
- (h) *Kautilya's Arthashastra* (between 320 B.C. and 300 A.D.) Chap. XI, includes sandal among objects entered into treasury.
- (i) Buddhist *Jataka* Stories (7th cent. B.C.) mention sandal as article of toilet.
- (j) Sandal-wood was one of the articles of commerce brought from India to the Roman Empire.
- (k) Francis Buchanan in *Travels in Canara and Mysore* (A.D. 1807) refers to sandal tree found in quantities at many places. "The quantity brought from Coorg during the years 1792 to 1798 amounted to about 12000 candies."

II — Evidence opposed to an Indian origin.

- (a) *Ain-i-Akbari* of Abul Fazl (1551-1602 A.D.) Vol I, Ain 30, page 81 refers to chandan as follows :—"9. sandal-wood called in Hindi *Chandan*. The tree grows in China. During the present reign it has been successfully planted in India."
- (b) *Garcia da Orta* (A.D. 1562) refers to the introduction of the sandal tree in his *Colloquies* etc. p. 369.

- (c) *Cosmos (Indicopleustes* — about A.D. 545) Hak. Society, Vol. 98, p. 363, concerning Taprobane (*Sumatra*), refers to the importation of *sandal-wood* to India from the Malay Archipelago.
- (d) *Ebn Baithar* (about A.D. 1250) in his account of eastern medical plants (ed. by Dr. J. Sontheimar, 1842, p. 138) states that the name *sandal* "betokens a wood brought from China."
- (e) *Barbosa* (c. A.D. 1500) mentions the uses of *sandal-wood* in India. He asserts that it occurs in Timor and in no other locality. He does not include it in the products exported from Cochin or Calicut. His evidence is important as he was employed in commerce on the Malabar coast.
- (f) *Magellan (First Voyage etc., Hak. Soc. Vol. 35, page 153)* states in reference to *Timor* that "... *white sandal-wood* only grows in this country."
- (g) *The records of the East India Co. (The English Factories in India, 14 Vols. 1618-1677 A.D.)* refer to a considerable trade in *sandal-wood* but there is no record of the wood being obtained in India.

After discussing the evidence briefly indicated above Fischer puts forward the following theory :—

"At a very early period a scented wood (or woods) was produced by a tree growing in India probably mainly in the South. This wood was used for various purposes and went by the name of *chandam*. Later on the wood of *santalum album* began to be imported and as it became more and more available, gradually replaced the indigenous wood. At first it may have shared the same name and in due course supplanted the original even in that respect. Eventually some enlightened person thought of introducing the plant itself, but the spread except where enforced, would be slow. The fact that the tree where it grows at present appears to be indigenous need not impress one greatly when one considers the establishment of other non-indigenous plants in India. Who seeing *lantana* or prickly-pear-infested localities would imagine that they are aliens, were the history of their introduction not known? I must now leave the decision to my readers."

The above Theory is cogent enough in the light of the evidence recorded by Fischer. Granting that the *white sandal (santalum album)* was introduced into India from outside as postulated by Fischer, we have to see at what time it was planted on Indian soil. In this connection

the references to *white sandal* (*sveta candana*) collected by me from Sanskrit sources would be found useful. Before tabulating these and other references chronologically I shall record a few more references to *candana* with a view to making this study as comprehensive as possible.

(47). I have to record most gratefully the following remarks of my friend Mr. A. S. P. Ayyar, M.A., I.C.S., District and Sessions Judge, Chittoor, regarding *candana* in Tamil sources :—

12-6-47 — "I find in the Tamil *Silappadikaram* (The Lay of the Anklet, an epic whose date is put variously between the 2nd and 5th century A.D.) the hero, Kovalan, drawing figures with sandal paste (*chandanam*, no mention of *white* or *red*) on the breasts of his beloved, Kannaki. It is the custom in Malabar and the south country still for the bridegroom to daub a woman's breasts with sandal paste on the nuptial day! Of course the drawing of figures is a poet's fancy, the figures drawn being *Kāma* and *Rati*!"

3-7-47 — "Now as to *sandalwood*—*Silappadikaram* is a Tamil book having only about 11% of Sanskrit words in it, the remaining 89% being purely Dravidian (Sumerian, Proto-Indian or whatever its origin!). It does not of course say "*Malayaja*" *Chandanam* but merely *chandanam*. I give you below the exact reference you want :—(1) In *Book I* (song of Benediction) you find this :—"Lovely maidens bringing spices and flowers spoke and sang and looked bewitching. Women with full breasts and lovely tresses took with them *sandal-paste* (*chandanam*), frankincense, perfumes and powders," and distributed them at the marriage of Kovalan and Kannaki, just as such ladies do even today in our Tamil Nadu. I never heard of any sandal paste being distributed at marriages except our usual *white* or *yellow sandal paste*. (2) In canto 2 of *Book I*, *Kovalan* (Sanskrit *Gopalan*) paints on the broad shoulders and full breasts of *Kannaki* (in the privacy of the nuptial chamber) the sugar-cane (*Kāma*'s bow) and *Kamanalli* (the heavenly creeper representing *Rati*) with *sandal paste*. He tells her, "with *sandal-paste*²³ figures painted on your beautiful breasts, what need is there for a string of pearls on them?"

There are some other references to *chandanam* in the book. But these would suffice. Please remember that the patron Saint of *Tamil*

23. The practice of applying Sandal paste to breasts in a marriage ceremony referred to in the Tamil work may be compared with the following verse in the *Caraka-saṃhitā* (*chikitsa-śāstra*, Chap. 29—*vātarakta-cikitsā*—p. 633 of N. S. Press Edition, 1941) :—

—"*Candanāntrastanamakaraḥ priyaḥ nāryaḥ priyadvadhāḥ | sparśasāṭhī
sukhasparśa ghoṇṭi dahadrūjāḥ kāmān || 130 ||*"

Here *Caraka* prescribes an agreeable company for the patient suffering from *vāta-rakta*.

Nadu, who gave it its alphabet, grammar and institutions was Agastya Kumharyati the twin brother of Varishtha, the Aryan sage and that his abode was Agastyaśrīrāma hill or Chendamarikāla (Malaya) in Travancore (called also Podiyil Hills). Of course, the *Silappadikāram* may only date from the 5th cent A.D., though Dr. Krishnamoorti Aiyangar and Prof. Nandabandu Sastri put it in the 2nd cent A.D."

(48) Cakrapāṇidatta (c.A.D. 1060) while commenting on the term *haricandana* in *Caraka-saṁhitā* (*Sātravāhina*, Chap. 8, para 9—p. 341 of N. S. Press Edition, 1941) equates *haricandana* with *svetacandana* (white sandal) as will be seen from the following extract:—

—"*Haricandanaśabdādena svetacandanaṁ vivakṣitaṁ, haribādhāya mekārthmāt; haribādhena hṛtasyaiva grāhaṇaṁ prastāvartat*"

The opinion of Cakrapāṇidatta that *Haricandana* of *Caraka* is identical with *Sveta candana* or white-Sandal appears to be unwarranted²⁶ as we are not quite sure if the *svetacandana* was known to *Caraka* and secondly Kṛṣṇiḥya in his passage on the varieties of *candana* mentions *Haricandana* as having the colour of the feathers of a parrot, and smelling like tamarind or mango fruit." (*haricandanaṁ Śakapattavargamāṁtragandhi*). Evidently the testimony of Kṛṣṇiḥya in explaining the *Haricandana* of *Caraka* is more useful to us than that of Cakrapāṇidatta who flourished more than 600 years after these authors.

(49) The poet Māgha (c. A.D. 625), in his *Sisupalavadhābhīrya* (Canto XI, verse 14) refers²⁷ to *malayaraharajās* (sandal-rose) the whiteness of which is first compared to the whiteness (*dharaśīma*) of the moon and then concerned with the colour of saffron (*brahmasa*). The western quarter

26. Similarly Cakrapāṇidatta explains the term *candana* as *Bala-candana* and *Madhava* as *svetacandana*, Chap. 3 of *candanaśāstra* (p. 422 where the recipe of *Candanaśāstra* is recorded by Caraka. The correctness of this explanation is also open to doubt.

27. Verse 14 of Canto XI of *Sisupalavadhābhīrya* (p. 268 of N. S. Press Edition, Bombay, 1932):

—"*Madhavaśāmbhābādhāḥ tādānānāḥ tādānānāḥ tādānānāḥ tādānānāḥ
pāṇa pāṇiśāmbhā tādānānāḥ tādānānāḥ tādānānāḥ tādānānāḥ
tādānānāḥ tādānānāḥ tādānānāḥ tādānānāḥ tādānānāḥ tādānānāḥ*"

Balaśāstra (c. A.D. 1438) explains:—

"*Madhavaśāmbhābādhāḥ tādānānāḥ tādānānāḥ tādānānāḥ tādānānāḥ
tādānānāḥ tādānānāḥ tādānānāḥ tādānānāḥ tādānānāḥ tādānānāḥ
tādānānāḥ tādānānāḥ tādānānāḥ tādānānāḥ tādānānāḥ tādānānāḥ
tādānānāḥ tādānānāḥ tādānānāḥ tādānānāḥ tādānānāḥ tādānānāḥ
tādānānāḥ tādānānāḥ tādānānāḥ tādānānāḥ tādānānāḥ tādānānāḥ*"

This is a beautiful description of the moon at sunset in the western quarter.

(*putrakānta*) looks beautiful on account of the white moon's rays *concealed* slightly with the red glow of the evening sky, (at sunset). The western quarter looks beautiful like a lady having on her body a mixture of white *Malayaja* dust (or paste) and the colour of saffron. The slight *contrast* of the white and saffron colour, instead of marring the beauty of the lady, only tends to heighten it.

This is the earliest reference to the *Dhavalina* or *whiteness* of the *Malaya-horn sandal* so far discovered by me in Sanskrit literature. This reference is earlier than the reference to the *Malayaja* sandal and its whiteness referred to by *Vaṃśana* (c. A.D. 800) in his *Kaṣṭhaśāstra*, *Saṃvṛtti* in his description of *abhiśāhita*.

(52) *Vṛda* in his *Siddhayaoga* (ed. in *Amarendraśāstra* Sans. Series, Poona, 1894, p. 400—Chap. 56—*masṛikādhikāra*), refers to two kinds of sandal, *candanaśayana* as follows:—

“*Vāsāṇā darslabhām dhātumastīnam cāndanaśayanaṃ*”

The commentator *Śrīkaṇṭhadatta* in his *Vyākhyānabhāṣya* commentary (c. A.D. 1240) on the *Siddhayaoga* of *Vṛda*²⁶ (9th or 10th cent. A.D.) explains the term *candanaśayana* as follows:—

“*Candanaśayanaṃ śveta-candanaṃ raktacandanaṃ ca*”

Elsewhere (p. 210) this commentator explains *candana* in the *Siddhayaoga* as *śveta-candana* and on p. 304 *candana* in *Vṛda* is explained to mean *śveta-candanaṃ raktacandanaṃ* (iti *īśānab*)

(53) The theory adumbrated in the present paper that the *Malayaja* sandal is identical with *white sandal* gets additional support from the following evidence of the Bengali commentator *Aruṇadatta* (c. A.D. 1230):—

The *Aṣṭāṅgaśāstrayaoga* (*Sāstrasthāna*, Chap. 15, verse 11, p. 235, of *Parāśara Śastra*'s Edition, N. S. Press, Bombay), refers to a term *śītaśayana* in the following verse:—

“*Śītoṣṇakāṣṭhānyamādhukāśītaśayanaṃ | yaṣṭi paripākaṃ kanti
dīpīrāśāśāṇḍjvarān || 11 ||*”

Aruṇadatta explains:—

“*Śītaśayanaṃ-ekam śīta-candanaṃ²⁷ malayajasantīyāṃ aṣṭāṅga-candanasantīyāṃ.*”

26. See p. 179 of D.E. Sircar's “*Kaṣṭhaśāstra*” (*Abinibādh*, 1943) where *Kaṇṭha* Gopabandha Sen's view on this date for *Vṛda* is quoted.

27. *Vandana* in his *Kaṣṭhayaoga gṛhyasamgraha*, (*Samita* Sans. Series, 1936, p. 10) mentions *śīta-candana*:—

“*Vivāhānāṃ vākyānāṃ | vārāḥ śītaḥ śītaśīlaśīlaśīlaḥ śīta-candanaḥ*”
etc.

Arunadatta states clearly that the term *fitiradvayam* means two kinds of *candana* viz. (1) *ooc*, white sandal known as *malayaja* and (2) the other known as the red sandal.

Elsewhere (p. 236 — *Sūtrasthāna*, Chap. 15, verse 19) Arunadatta explains the term *trikīma* mentioned in the *Aṣṭaṅgahṛdaya* as follows:—

"Trihiṃśa candanatrāyam, *malayajarakṣatcandanadaruharidra, bhedena.*"

It is clear from the above evidence that in the medical circles of Bengal about A.D. 1200 a variety of sandal was known as *Malayaja* and further this sandal was white, as expressly stated by Arunadatta.

We must now try to trace the earliest references to the *Malayaja* sandal. With a view to helping further research in this subject I record below a tabular statement giving the chronology of the references to *candana* and its varieties as disclosed by the varied evidence gathered by me in this paper:—

Chronology

Reference

- Between B.C. 100 and A.D. 300 — *Ramayana* contains many references to *candana*, *haricandana*.
- Between B.C. 300 and A.D. 400 — *Jatakas* mention *candana* and *Kasibha-candana*.
- Between B.C. 200 and A.D. 300 — References to sandal-water and red sandal-wood in the *Mahābhārata* (*Droṇaparva* and *Karṇaparva*).
- c. 150 B.C. — *Patañjali* in his *Mahābhāṣya* mentions *candanagandha*.
- c. A.D. 80-90 — *Periplus of the Erythraean Sea* refers to Sandal-wood exported from *Broach* to a port at the mouth of *Euphrates*.
- c. A.D. 150 — *Aśvaghoṣa* mentions *candana* and *Lohita candana* (*Saundarananda*).
- *Bhāradvāja-gṛhyasūtra* (ed. by Salomonson, Leyden, 1913) mentions "*sarvasarabhiṣṭāṇa candanam ca*" (II, 18-page 50) and "*candanamzulepasyamaṇaḥ*" (II, 20-page 50).
- *Āg্নiveśya-gṛhyasūtra* (Trivandrum, 1940) mentions *candana* (p. 71) and *rakṣacandana* (p. 74). It refers to *lambala-lambaladi dadyas* (p. 131).

—*Āpastamba-gṛhyasūtra* (Benares, 1928)
p. 165 mentions *sarvasurabhipacandana* (V, 12, Sūtra 7).

—*Harivamśa* (of the Mahabhārata)
mentions *candana*.

—*Suśrūta Saṃhita* mentions *candana*
many times.

—*Bhela Saṃhita* mentions *candana* and
raktacandana.

—*Kaśyapa Saṃhita* mentions *candana* in
chapter on *dhāpas* and elsewhere.
It mentions *raktacandana* also.

—*Cāraka Saṃhita* mentions *candana*
many times. It mentions *agryacandana*
(*Dbavaleacandana*) according to *Cakra-*
pāṇidatta.

—*Kamasūtra* mentions *candana*.

—*Holy Bible* (Kings X 11 etc.) mentions
a tree called *algum* or *almug* which is
sandal according to some authorities.

—*Lalitavistara* mentions *candana* many
times.

—*Kaṇḍavyūha* mentions *candana* etc.

—*Guhyasamājatantra* mentions *candana*
karpūra.

Between A.D. 200 and 600

Between B.C. 320 and A.D. 300

—*Arthashastra* mentions 15 varieties of
candana with their colour and smell
such as,

gośiṛṣaka, *haricandana*, *tāṇṣa*, *grāmeruka*, *daivasabheya*, *jāpaka*,
joṅgaka, *taurūpa*. 'maleyakam' described as *pāṇḍurakṣa*, *kucandana*,
kalapārvataka, *kośākārapārvata*, *śtodaḥyam*, *nagapārvata*,
śakalam etc.

—The Jain work *Jivajīvabhigamasūtra*
mentions *maleyacandana*.

Between A.D. 100 and 400

—*Kālidāsa* mentions *candana* as growing
on *malaya* mountain (in *Sakuntalam*)
as also *Kṛṣṇarṣa* associated with it.
In *Vikramorvaśya* he mentions *malaya*
and in *Ritusamhāra* he refers to *śita-*
candana (white sandal).

- A.D. 399-414 —*Fa-hsien* refers to sandal-wood from Bull's head (—*gośīrṣa*).
- A.D. 478-479 —Reference to *candana* used by Jain Arhats (Paharpur inscription).
- Between A.D. 200 and 400 —The Tamil epic *Silappadikāram* mentions *candana*.
- Between A.D. 200 and 800 —*Āryamañjuśrī-mūlakaḥ* mentions *śvetacandana* and *śuklacandana* many times.
- c.A.D. 500 —*Malaya (sandal)* mentioned in the *gandhayukti* section of Varāhamihira's *Brhat Samhita*.
- A.D. 432-1200 —Early Bengal Inscriptions mention *karpūra*, *malayaja* (mentioned in Deopara Inscription) etc.
- c.A.D. 545 —“Sandal-wood” (*Cosmos* in *Cathay* etc).
- Between A.D. 500 and 1000 —*Ahīrbudhnya Samhitā* mentions *candana*, *Karpūra*, *Raktacandana*.
- Between A.D. 500 and 800 —*Amarakośa* mentions *malayaja* and other varieties of *candana*.
- A.D. 750-800 —*Śaṅkarācārya* explains *candananyāya* of the *Bādarāyaṇa sūtras*. He mentions *Haricandana*.
- Pañcatantra* states that *candana* grows nowhere else, except on Malaya mountain.
- Between A.D. 500 and 800 —*Dhanvantarinighaṇṭu* mentions *malayaja*, *śvetacandana* etc. among the names of *candana*.
- c. A.D. 600 —*Śatvatakośa* mentions *haricandana*.
- c. A.D. 625 —*Maṅga* refers to the whiteness (*Dhavalimā*) of *Malayaruha* sandal dust in his *Sisupala-vadha* (xi 14)
- c. A.D. 630 —*Bāṇa* mentions *malayaja*, *candana* and *Hari-candana* in his *Kadambart*.
- c. A.D. 650 —*Shaman Li* mentions white *candana trees* on *Malayagiri* as also snakes frequenting these trees.

- A.D. 671-672 — *I-tsing* mentions sandal-wood paste.
 — *Candana* and *Gopicandana* mentioned in late *Vaiṣṇava Upaniṣads* like *Vasudevopaniṣad*, *Gopicandansūpa*, *Rāmatapani upa*, etc.
- A.D. 729-753 — *Gauḍavaho* mentions *malayabhava* (= *malayaja*)
- A.D. 755-786 — *Kuṣṭantmata* refers to *candanapaṅka*, *candana-dhupa* etc.
- A.D. 800-950 — *Vṛnda* in *Siddhayaṅga* mentions *candanadvaya* which *Śrīkaṇṭhadatta* (A.D. 1240) explains as (1) *śvetacandana* and (2) *Raktacandana*.
- c. A.D. 800 — *Vāmana* in his *Kāvyaṅkārāsūtravṛtti* mentions sandal in his description or *abhisārikās* going out in white moonlight to meet their lovers.
- A.D. 880-920 — *Rajasekhara* mentions *malaya* as the home of *candana*.
- Between A.D. 900 and 1120 — *Viṅgasena* mentions *Śvetacandana* (white sandal).
- A.D. 973 — *Dhanapāla* mentions *malayaruhamcandanam* (*Pañjalacchināmamālā*).
- c. A.D. 1060 — *Cakrapāṇidatta* explains *Agryacandana* (mentioned by *Caraka*) as *dhavalacandana* (white sandal).
- A.D. 1085 — *Bilhaṇa* refers to sandal-wood forests on *Malaya*.
- c. A.D. 1090 — *Surasundarīcarīa* mentions *malayaruha*, *Malayaja*.
- c. A.D. 1130 — *Manasollāsa* describes a sandal root *candan-amālā*.
- c. A.D. 1100 — *Āparārka* mentions *Śvetacandana*.
- c. A.D. 1100 — *Mammaṣa* in his *Kavyaprakāśa* mentions *malayaja* sandal in a verse (quoted from *Vāmana's Kāvyaṅkārāsūtravṛtti*).
- A.D. 1088-1172 — *Hemacandra* mentions 9 kinds of *candana* including *Malayaja* which he explains as "*Malayadrerjataḥ*". He also mentions 6 kinds of red sandal.
- A.D. 1298 — "*Sandal*" (*Marco Polo*).
 — *Marco Polo* refers to white and red sandal trees in Nicobar islands.

- A.D. 1240 —*Śrībhāṣhadatta* mentions *sveta candana* and *Raktacandana*.
- A.D. 1250 —*Ebn Bauthar* states that "sandal" betokens a wood brought from China.
- A.D. 1220 —*Arunadatta* states that *sita candana* was known in his time as *Malayaja* (*Malayaja-samjñam*).
- A.D. 1300-1400 —*Śaṅgadharaśamhita* mentions *Tagaracandana* which is translated as *white sandal* by the translator of this treatise.
- c. A.D. 1325 —*Śaṅgadharaśamhita* mentions *malayaja* (sandal).
- A.D. 1390 —"*Saunders*" (Wright).
- c. A.D. 1450 —*Narahari* in his *Rajanighaṇṭu* mentions two varieties of *white sandal* viz. (1) *veṣṭa* and (2) *Sukvadi*. He further states that the hills called *Veṣṭa* near Malaya produce *Veṣṭacandana*.
- c. A.D. 1550 —*Bhāvamitra* in his *Bhāvaprakāśa* mentions *Dhavalacandana*.
- c. A.D. 1500 —*Barbosa* asserts that *sandal* occurs in Timor and in no other locality.
- A.D. 1554 —"*Santal*" (Matthioli).
- A.D. 1563 —"*Sandal*" growing in Timor called *Chundana* (Garcia).
- A.D. 1584 —"*Sandales*" from Cochin and Malacca (Wm. Barret).
- A.D. 1590 —*Ain-i-Akbari* mentions (1) *candana* as growing in China and (2) the plantation of *candana* trees in India in Akbar's reign.
- A.D. 1613 —"*Sandal* trade" (Bocarro).
- A.D. 1615 —"*Sanders-wood*" (Sainsbury).
- A.D. 1618-1677 —Considerable trade in *sandal-wood* carried on by the East India Co.
- A.D. 1807 —Buchanan refers to *sandal* trees in Mysore and Coorg.
- A.D. 1813 —"*Sandal*" (red, yellow, white)—*Milburn*.
- A.D. 1826 —"*Red Saunders*" (Milburn).

37. History of Mendi or Henna

(Between B. C. 2000 and A. D. 1850)*

In his "*Ancient Egyptian Materials and Industries*," A. Lucas¹ deals with Cosmetics, Perfumes and Incense and observes : "Cosmetics are as old as vanity. In Egypt their use can be traced back to the earliest period of which burials have been found, and continues to the present day." About *henna* (Marathi हॅना) Lucas records some valuable information which may be of interest to students of the history of Indian Cosmetics and Perfumery. I note some points from this information as they provide a historical back-ground for study of *henna* from Indian sources. These points are as follows :—

Pages 87-88 —

(1) Egyptian unguents are described by Theophrastus, the Father of Greek botanical science and friend of Aristotle, as also by Pliny the Roman historian who died in 79 A.D.

(2) Pliny (XII, 51) mentions an Egyptian unguent made from *Cyprinum*, an Egyptian tree, which was probably *henna*, the flowers of which are odoriferous.

(3) "In connexion with *henna* it may be mentioned that the leaves were possibly used in ancient Egypt, much as they are today, in the form of a paste to colour the palms of hands, the soles of the feet, the nails and the hair. Thus the Romans certainly employed *henna*, an Egyptian shrub for colouring the hair (Pliny XXIII, 46) and probably, therefore, the Egyptians also, and Elliot Smith describes the hair of the mummy of Henttawi (XVIIIth Dynasty 1580 to 1350 B.C.) as being dyed a brilliant reddish colour, which he suggests, was done with *henna*. Naville states that the finger-nails of an Eleventh Dynasty (2160 and 1788 B.C.) mummy be examined were tinted with *henna* and Maspero thought that the hands of Rameses II were stained "jaune-clair par les parfums," Elliot Smith, however, suggests that the latter were merely discoloured by the embalming material, which may be the case also with the mummy to

*Annals (B. O. R. Institute), Vol. XXVIII, pp. 14-25.

1. Second Edition, Edward Arnold and Co., London, 1934. Mr. Lucas has published another book "*Antiques : their Restoration and Preservation*" published by this firm. I am thankful to Dr. P.M. Joshi, Librarian, Bombay University Library for drawing my attention to Lucas' books and lending them out to me.

which Naville refers, as it almost certainly is with the staining of the finger nails of several mummies examined by the author. Newberry has identified twigs of *henna* from the Ptolemaic cemetery of Hawara (W.M. Flinders Petrie, p. 50).

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(4) "The *henna* plant (*Lawsonia inermis*) is a perennial shrub that grows abundantly in Egypt; it is cultivated in gardens for its strong smelling flowers and as a farm crop for its leaves, the chief use of which is as an article of toilet, a paste being prepared from them, with which the hands, feet, nails, and hair are coloured red; a decoction of the leaves is stated to be occasionally used for dyeing cloth.

That the finger and the toe-nails of mummies are sometimes stained has often been noticed. Thus Rouyer says that certain mummies had the palms of the hands, the soles of the feet and the nails of the fingers and toes stained red with *henna*."

If the use of the *henna* plant products for staining the finger and toe-nails etc was current in Egypt say about 2000 B.C. as claimed by several writers quoted by Lucas, we have to see when and how this "Egyptian shrub" migrated to India and its use for staining certain parts of the human body became current in this country. I propose, therefore, to record in this paper some data which might enable scholars to study the history of *henna* from Indian sources :—

(1) In the Marathi Dictionary (*Śabdakośa* by Date and Karve, p. 2528) we are informed that the *henna* plant is identical with *mendi* (मेंदी). Its leaves mixed up with *अरु* and *बुना* are used by women for painting finger and toe-nails. A bunch of *mendi* fruits is called *इसबंद* and the *attar* from *mendi* flowers is called *kina* (कीना). [Sanskrit—*mendhi* (मैंदी)].

The *Śabdakośa* does not record any usages of the word from Marathi literature.

(2) In Apte's *Sanskrit-English Dictionary* we find the following entry about *mendi* without any usage :—

Page 879 :—"मैंदिका, मैंदी—Name of a plant (Mar. मैंदी) from the leaves of which a reddish dye is extracted wherewith to colour the tips and nails of fingers, the soles of the feet and palms of the hand."

1. The *Śabdakalpādruma* (by Rādhā Kṛṣṇadeva Bahadur) records the following entries about मैंदिका and मैंदी :— Vol. III, p. 782 :—"मैंदिका. रुद्रि, (सं) शीतानिप्ययति क्वाशयतीति । इष्य + निष् + क्तुः । दासि क्वाश इत्यङ् । इति कैश्चित् । मैंदुः इति नात् ।"

"मैंदी. रुद्रि, (सं) शीतानिप्ययतीति । इष्य + निष् + क्तुः । शीतानिप्ययत् । इति कैश्चित् । मैंदुः इति नात् ।"

(3) Brewer's *Dictionary of Phrase and Fable* informs us as follows about *Henna* :—

Page 598 — "*Henna*. The Persian ladies tinge the tips of their fingers with *henna* to make them a reddish yellow."

"The leaf of the *henna* plant resembles that of the myrtle. The blossom has a powerful fragrance; it grows like a feather about 18 inches long, forming a cluster of small yellow flowers."

—Baker : *Nile Tribes, Abyssinia*
Chap. i, p. 3.

(4) In the *New Encyclopaedia* (T.C. & E.C. Jack, London), p. 767, *Henna* is described as "the powdered leaves of *Lawsonia inermis*. These contain a red stain, used in *Persia* and *India* to dye the finger nails etc."

(5) According to *Shorter Oxford English Dictionary* (p. 890) the word appears to have been current in the English language for about 350 years as will be seen from the following entry :—

—"*Henna*...1600 [a. Arab. See also *ALCANNA*]. The Egyptian Privet *Lawsonia inermis* (N.O. *Lythraceae*); the shoots and leaves of this plant used especially in the East, as a dye for parts of the body, or made into a Cosmetic with *Catechu*."

— "*Alcanna* — na. 1625 [a. Sp. *alcana*, a. Arab. *al-henna* : see *Henna* and *Alkanet*]. Bot. Egyptian Privet (*Lawsonia inermis*, N. O. *Lythraceae*) or its leaves, etc., used by Orientals to dye parts of the body reddish orange ; *henna*."

— "*Alkannet*. ME. [? ad. *alcaneta*, dim. of *alcana*...var. *Orcamet*. (1) Dye-material yielding a fine red colour. (2) The plant whose roots yield the dye *Anchusa* or *Alcanna tinctoria*, N. O. *Boraginaceae*; *Orchanet*, *Dyer's* or Sp. Bugloss, Bugloss of Languedoc 1567 etc. (L. *Canescens*)."

The above entries show how *Henna* and its products had entered the European languages and settled there from about A. D. 1550. Unfortunately in our dictionaries no usages of the word have been recorded, though the *Henna* plant under its vernacular name *mendi* (मेन्दी) is now grown in different parts of India and its dye used by Indian women to dye their fingers and toe-nails as in ancient Egypt of c. 2000 B. C.

(6) In the *Hobson-Jobson* (by Yule and Burnell, London, 1903) we get the following information about *Mendi* or *Henna* plant :—

P. 567 — *MENDY* — S. Hind. *mehndi* [menhdi Skt, *mendhika*] the plant *Lawsonia alba*, Lam. of the N. O. *Lythraceae* strongly resembling

the English privet in appearance and common in gardens. It is the plant whose leaves afford henna used so much in Mahomedan countries for dyeing the hands etc. and also in the process of dyeing the hair. *Mehndi* is according to Royle the *Cyprus* of the ancients (see *Pliny* xii, 24). It is also the *Camphire* of Canticles, i, 14, where the margin of A. V. has erroneously *Cypress* of *Cyprus*.

1813 — "After the girls are betrothed, the ends of the fingers and nails are dyed red with a preparation from *Mendey* or *hinna* shrub."

— (Forbes, *Or. Mem.*, 2nd Ed. i, 55, also see i, 22).

C. 1817 — "... his house and garden might be known from a thousand others by their extraordinary neatness. His garden was full of trees and was well fenced round with a ditch and *mindey* hedge."

— *Mrs. Sherwood's Stories*, ed. 1873, p. 71.

These usages of *Mendi* or *Henna* do not help us very much to trace the history of this Egyptian shrub in India as they are later than A. D. 1800.

(7) Nityanathasiddha in his *Rasaratnakara* (*Vādikhaṇḍa*, chap 6, p. 49 of the Edition by Rajavaidya J. K. Shastri, Gondal, 1940) describes *महिनदी* as follows:—

“भागा द्वादश तारस्य शुल्कस्य भागचोषा ।

आयुर्वेदं कारयेत्तत्र क्षिप्त्वा रुष्मा पुटे पचेत् ॥ ५६ ॥

महिन्दोपनिषत्सिद्धेः चाराणि बोधका ।

रसगन्धसिद्धिभागान्कमहृद्भा विमर्दयेत् ॥ ५७ ॥”

I am of opinion that the expression “महिन्दोपनिषत्सिद्धेः” in this extract means “the decoction of the leaves of महिन्दो or मेदी or *Henna*.” If my identification of महिन्दो with मेदी is accepted we have in the extract some evidence of the use of मेदी or *Henna* in Indian alchemy as early as the 13th century, to which Nityanātha Siddha has been assigned by scholars.¹ Even if this identification of महिन्दो with मेदी is not found acceptable it cannot be easily brushed aside as we find from the following reference that the word “मेदी” was actually current in India about 850 years ago.

(8) In the *Suśrutasaṃhitā* (*Cūḥitsasthāna*, chapter 25 निषधविहितम्, verse 43) the following verse refers to a plant called मरुगन्धिका and its

1. Vide pp. 202-203 of *पादुर्वेदी इतिहास* by Pt. D. K. Shastri. Rajavaidya J. K. Shastri's Edition of the *पादुर्वेदी* from which I have quoted the above extract is based on a MS dated *Vikrama Samvat* 1682 = A. D. 1576 (Vide p. 184 of this Edition).

leaves (पत्र) in the preparation of a fragrant unguent* (पुष्पराग) worthy of kings (नरदेव-योग्य):—

(P. 496 N. S. Press Edition, 1936)—

“हरीतकीपत्रपरिहृत्य
पुतल्यं राक्षियपुष्पम् ।
पत्रं च दद्यान्मयन्मिकाया
खेपोऽङ्गरागो नरदेवयोग्यः ॥४३॥”

Dallaṇa (c. A. D. 1100) the Kashmirian commentator of the *Sufrutasamhitā* comments on the above verse as follows:—

“हरीतकीपत्रादि। परिहृत्य निम्बपत्रं केनितृक्षपत्रं वा। पुतल्यं, मासल्यं। मयन्मिका
‘मैदी’ इति कोके यस्याः पिष्टैः पत्रैः नखानां रागं क्षियं उत्पादयन्ति ॥४३॥”

Dallaṇa states that मयन्मिका mentioned by the *Sufrutasamhitā* is identical with the plant मैदी known in his days (c. A. D. 1100). He further takes care to inform us that ladies use the powder and leaves of मैदी to paint their nails. This explanation clearly proves that मैदी was cultivated in India in Dallaṇa's time. If Dallaṇa's equation of मयन्मिका with मैदी (or *Henna*) is supported by other earlier evidence we shall be in a position to infer that this Egyptian shrub entered India during the early centuries of the Christian era when the text of the *Sufrutasamhitā* was composed.

(9) Thakoresaheb of Gondal in his *History of Aryan Medical Science* (London, 1896) refers in the following remarks to *Henna* among new additions to *Indian Materia Medica*:—

Pages 122-123 — “About the middle of the present century, that is to say in 1867, Pandit Vishnu Vasudev Godbole published his “*Nighaṇṭaratna-kara*.” It is a very popular work as it contains an epitome of all the

2. In this unguent no fat or oil is mentioned as a constituent, but in verse 40 *Susruta* refers to a fatty preparation for the face as follows:—

“मैदी मज्जा सिक्थकं गोघृतं च
दुग्धं कायः क्षोरिणां च इ माषाणाम् ।
एतत्सर्वं पक्वकथ्यतस्तु
वक्त्राभ्यङ्गे लघिष्ठकं प्रधानम् ॥ ४० ॥”

Lucas (p. 85) states that in ancient Egyptian Cosmetics oils and fats were freely used as vouched by ancient records, and by Greek and Roman writers. The use of alcohol in the perfumery of modern times which requires a knowledge of the process of distillation cannot have been known in ancient Egypt. The earliest reference to this process is that by Aristotle (*Meteorologica* I, 9, 11; II, 11, 3) in 4th cent. B. C. Theophrastus (4th to 3rd cent. B. C.) and Pliny (1st. cent. A. D.) mention distillation, though the process was then in a primitive state. In Pliny's days and in the time of Theophrastus plants were steeped in oil and then pressed or boiled in oil.

previous treatises on *Materia Medica*, supplemented by about *fifty new herbs not referred to by older writers*. Among the new names we find *Eliwaka* (aloes),¹ *Anannasa*² (pine-apple), *Peruka* (guava)³, *Tamakhu* (tobacco),⁴ *Pudina* (mint), *Medica*⁵ (*henna*), *Sitaphala*⁶ (custard apple), etc.

While admitting that *Henna* is a new comer to India I may observe that it migrated to this country sometime before A. D. 1100. The exact period of this migration, whether it was before the Muslim conquest of Sindh in A. D. 712 or after it, needs to be determined on documentary evidence. In this connection I may point out that Dallāṇa, who equates मदयन्तिका (of सुषुत) with मेदी or Henna, elsewhere equates अश्वत्थला plant mentioned by सुषुत with हिरिक्य of the कुल्लू country and further states that अश्वत्थला is a kind of मेयिका with large leaves. In my paper⁷ on *Aśvabala* I have recorded Prof. A. K. Shaikh's view that हिरिक्य mentioned by Dallāṇa is equal to the Persian word "*Ispist*" or "*Aspist*", which means a fodder for horses, used in India, Persia and Turkey and known as "*Lucerne grass*." Is it possible to suppose that this हिरिक्य or a variety of मेयिका came to India along with Persian horses⁸ which were imported to India from very early times? If such a supposition is historically tenable it may be possible to presume that the words मदयन्तिका and अश्वत्थला equated by Dallāṇa with मेदी or henna and हिरिक्य or a variety of मेयिका respectively, were Indian names of foreign plants, which migrated to India long before the Muslim conquest of Sindh in A. D. 712. We must, however, collect more data pertaining to the relics of early Indo-Persian contact in the wealth of linguistic material bearing on *materia medica* available in the early medical texts like the *Carakasamhita*, the *Suśrutasaṃhita* etc. In this way alone we can understand the historical background of each item in the ancient Indian *materia medica*, which got enriched by foreign contact through centuries of political and cultural vicissitudes.

1. Vide article on *Aloes* in *Hobson-Jobson* (p. 16). Pliny (A. D. 70) states: "The best *Aloe* (Latin the same) is brought out of India."

2. Vide article in *Hobson-Jobson* (pp. 23-28) — Usages of 'Pine-apple' recorded here are from A. D. 1585 onwards.

3. Vide *Hobson-Jobson* (pp. 399-400) — Usages from A. D. 1550.

4. Ibid. pp. 924-926 — Usages from A. D. 1550.

5. Ibid. p. 567 (*Mindy*).

6. Ibid. pp. 284-286 (*Custard Apple*) — Usages from A. D. 1672.

7. See pp. 67-80 of *Bharatiya Vidya*, July 1946.

8. Vide my paper on *Persian Horses imported to India from c. A. D. 600 onwards* in *Poona Orientalist*, Vol. XI, 1946.

(10) In the *Ain-i-Akbari* (c. A. D. 1590) Abul Fazl records the *Regulations of the Perfume Office* (Pages 65-75 of Gladwin's Trans. Vol. I, Calcutta, 1897) in which there is a list of Flowers. This list contains *Henna*, which is described (p. 72) as follows :—

"*Henna* has four petals and every shrub bears a different coloured flower."

Elsewhere (p. 328) the *Ain-i-Akbari* refers to *Henna* as follows :—

"Excellent *Henna* of a high colour is also to be procured here (i. e. at *Byanah* in the *Soobah* of *Agra*). Perhaps the oil of *Henna* is meant in this reference.

I may note here that the *Rajavyavaharakosa* (c. A. D. 1676) composed by Raghunātha Paṇḍita mentions cosmetics and perfumes with some foreign names for them current in the 17th century. There is no reference to *Henna* in the verses¹ which mention these cosmetics and perfumes.

(11) As regards मदयन्त्रिका equated by Dallāṇa with मैदी (or *Henna*) I have to observe that this word is found in the *Aṣṭaṅgasamgraha* of Vagbhata II (about 8th or 9th century A. D.) in the following contexts :—

(i) चिकित्सितस्थान (chap. 2, verse 27 — p. 579 of N. S. Press Edition, 1939). In the treatment of leprosy or रक्पित Vagbhata prescribes मदयन्त्रिका along with other drugs as follows :—

"पटोलमालतीनिम्बचन्दनद्वयपक्वम् ।

रोषो हस्तन्दुलोपः कृष्णायुष्यद्वयम् ॥ २० ॥"

Hemādri (A. D. 1260) explains मदयन्त्रिका as दूषिका, which is a kind of *Jasmine*.

1. See राजव्यवहारकोष (Shivaji Press, Poona, 1880, p. 8) मीदयल — Verses 90-94 read as follows :—

"सुषुबोयु इति तु प्राहुः सुगन्धिद्रव्यनाथकम् ।

कस्तूरी मुष्कमित्युक्ता मात्मिकं रत्नं चरं विदुः ॥ ६० ॥

शोभा त्वगस्फारः स्याद्वर्गज्ञा यद्वर्द्धनः ।

अबादी नाम माजोरमद इत्यामनन्ति हि ॥ ६१ ॥

गुलाबः स्याद्वर्द्धनम् अबादी गन्धवर्द्धकम् ।

अक्षरः पुष्पहारः स्याद्वस्तुहारोऽङ्कनामकः ॥ ६२ ॥

मकरन्दो गुलाबः स्यात् केसर जाफरा भक्ते ।

मल्लीतेल भोगरेलं चमेली जातितेलकम् ॥ ६३ ॥

तथा चम्पकतैलं चापेक्षमिति कीर्तितम् ।

ऊर्ध्वो धूपो सितपात्रं सर्वज्ञानमितीरितम् ॥ ६४ ॥

I cannot say if the term अक्षर in verse 92 includes the *attar* of *Rose* and the *attar* of *Henna*.

(ii) उत्तरस्यान (chap. 7 — अमरसामुद्रिक — verse 22) p. 803 — Here मरयन्ती is a constituent of the पञ्चगव्य preparation but the commentator Arunadatta does not explain the word

The *Aṣṭaṅgasamgraha* of Vāgbhata I (c. 625 A. D.,) refers to मरयन्तिका (उत्तरस्यान - chap. 8 - अमरसाधिका — p. 78 of Chitrashala Press Edition, Poona, 1940) as an antidote against poison as follows :—

“तत्रातिविषारवेताकाक्यानीयवृषण्तिकाकले क्षीरसिद्धं
उर्विर्नस्ये पाने च विदध्यात् ॥ ३६ ॥”

The commentator इन्द्र does not explain the word मरयन्तिका but the editor Pt. R. D. Kinjavadekar explains it as मल्लिका (मोगरी, बलयोगरा).

The *Amarakosa* does not contain the word “मरयन्तिका” though it mentions वृषिका. The lexicon *Vaijayanti* (c. A. D. 1500) refers to मरयन्ती in the following line :—

“उत्तमोर्ध्वदन्तो गवाक्षो तुण्डव्यक्तम्” (see p. 60 of Gustav Oppert's Edition of *Vaijayanti*). Oppert explains मरयन्ती as “Arabian jasmine ... *Tamil* : Mallikai”.

In view of the above evidence about मरयन्तिका which contradicts Dallaga's equation “मरयन्तिका = मेदी” we cannot be sure if the term मरयन्तिका does really mean मेदी or Henna. We must, therefore, try to find out some explanation of मरयन्तिका in sources earlier than A. D. 1000.

(12) Mr. K. M. Vaidya in his *अष्टाङ्गहृदयकोष* (Trichur, 1936, p. 418) explains मरयन्तिका as “नखरजको नाम वृक्षविशेषः। यस्याः पिष्टः पत्रैर्नखानां रागं श्लिष्य उवाचयन्ति।” “पत्रं च दद्यान्मरयन्तिकाया लेपोद्धारतो नरदेशयोग्यः” इति सुश्रुतः”. He then records the vernacular and foreign names of मरयन्तिका as follows :— हि—मेदी, मेदी, मरिन्दिर, हं—मेदी, मेदी ... पा (Persian) — हिना, अ (Arabic) कोरणा, हिना अकार् अफलदुन ... ३ (Tulu ?) — मरैगि French — *Henne*; English — *Henna* Samphire; Latin — *Lawsonia alba*.

नामानि— “ तिमिरः कोऽदन्ता च द्विपुत्री नखरजकः ”

गुण्याः — “ रकराजा दाहन्ती वान्तिकच्छलेऽम्बुछटा ।

श्रीकमस्या ग्राहकं तु शोषकं च प्रकीर्तितम् ।

मृदयाहापो दीर्घं च ज्वरं चैव विनाशयेत् ”

Vaidya remarks :— “ मल्लिका इति वक्षः। नखमल्लिका इति एके ”. He explains मरयन्ती as “ नखरजकः । पातको इति इन्द्रः । ‘ अठमल्लिका ’ इति हाराण्यनम् । ”

1. This statement is taken from Dallaga's commentary on सुश्रुत as I have already shown in this paper.

(13) *Rasārṇava* (c. 12th century A. D.) an important work on alchemy (ed. by Sir P. C. Ray and Pandita Harischandra Kaviratna in Bib. Indica, Calcutta, 1910) refers to मद्यन्तिका in the following extract from its 5th Patala (ओषधिनिर्यय) :—

Page 66 — “ मञ्जिहा कुसुमं लाक्षा सदिरश्वासनं तथा ।

रक्तवर्णस्तु देवोषि—दीपितवर्णमतः शृणु ।

कुसुमं किंयुक्तं राज्ञो पतङ्गो मद्यन्तिका ॥ ३१ ॥”

In the Glossary at the end of his edition of *Rasārṇava* Sir P. C. Ray explains कुसुम = Safflower (*Carthamus tinctorius* ; किंयुक्त = *Palāṣa* having flowers of 4 colours (*Butea frondosa*) ; राज्ञो = इरिषा (Turmeric) ; पतङ्ग, (= पत्त) *Caesalpinia Lappan*, Beng. *Vakam* and मद्यन्तिका = नममञ्जिका. A sort of jasmine, Beng. *Kaṣa mallika*.

As मद्यन्तिका is included in the पीतवर्ण or plants yielding yellow dye it is difficult to equate it with *Henna* which produced red or reddish dye.

(14) While this paper was being drafted I discovered the following additional references to मद्यन्तिका in the *Susrūtasamhitā*—

(i) चिकित्सास्थान, chapter 2 (अणुचिकित्सित) — कन्ठाः

Page 414 — “ नैपाक्षी जालिनी चैव मद्यन्ती मृगादनी ” (verse 91).

Dallāṇa explains :—

“ नैपाली मनः शिला । जालिनी कपोतकी ।

मद्यन्ती मेन्दिक्ता नखरञ्जनी । मृगादनी इन्द्रवाक्प्री ।” etc.

(ii) चिकित्सास्थान, chap. 9, verse 34—

Page 445 — “ त्रिफला त्वक् त्रिकटुकं सुरभा मद्यन्तिका ”

Dallāṇa explains :—

“ मद्यन्तिका नखादिरामरञ्जनी मेहदो (v. 1. महीन्द्रो) इति प्रसिद्धा ”

Dallāṇa further quotes a passage from इन्द्रवामटीय (i. e. अष्टांगसंग्रह of Vāgbhaṭa, I) in which मद्यन्ती is mentioned :—

“ ... वृद्धवामटीयं महानीलधृतं लिखते । यथा—

“ मद्यन्त्याः सवायस्याः सुरभ्याः प्रमहस्य च ” etc. (चि. ३२)

(iii) चिकित्सास्थान, chapter II, para 10 refers to “ त्रायन्तिका ” as follows :—

Page 453 — “ ततः प्रियङ्गु-अनन्ता-यु-विका-वृषा-त्रायन्तिका ... ”

Dallāṇa explains :—

“ त्रायन्तिका मद्यन्तिका ” १

1. In सुश्रुत. चिकित्सास्थान. Chap. 25 we get a reference to “ मोदयन्ती ” which Dallāṇa explains as “ मलिका ” :—

Page 496—Verse 33 :— “ पिष्ट्वाऽयं सर्वं सह मोदयन्त्या ”

Dallāṇa :— “ मोदयन्ती मणिकेति लोके ख्याता ”,

In verse 43 मद्यन्तिका (= मेन्दी) is referred to by सुश्रुत.

From the references recorded above we get the following equations according to Dallāṇa :—

- (1) मद्यन्तो or मद्यन्तिका—मेन्टिका, मेहरी (नकादि रागरत्ननी or नखरत्ननी)
(v. l. महिन्तो)
- (2) मद्यन्तिका = त्रायन्तिका (द्रुधुत)
- (3) मोद्यन्तो—मज्जिका

I cannot say if त्रायन्तिका in *Suśruta* means मेन्तो (Henna), as in the *अष्टांगहृदयकोषे* it is equated with त्रायमाणा (p. 275) and variously explained.

It is noteworthy that Dallāṇa distinguishes between मोद्यन्तो and मद्यन्तो or मद्यन्तिका. Hemādri explains मद्यन्तिका as मृदिका as we have already stated. The *Dhanvantari Nighaṇṭu* as quoted in the *अष्टांगहृदयकोषे* (p. 430) also mentions मद्यन्तो as the name of मज्जिका.

Whatever be the real meaning of मद्यन्तो or मद्यन्तिका mentioned in the *Suśruta* the fact remains that in Dallāṇa's time (c. A. D. 1100) it was understood as equivalent to मेन्तो or मेन्टिका or मेहरी with its use for colouring the nails etc. as mentioned by Dallāṇa three times in explaining the word मद्यन्तिका.

P.S. — My friend and colleague Mr. G.N. Shrigondekar, Librarian, B. O. R. Institute, informs me about the uses of *Mendt* now current in *Mahārāṣṭra* as follows :— "Ladies generally apply *Mendt* to the palms of hands, soles of feet and the forehead (between the eye—brows) and the nails of fingers in the month of *Śrāvaṇa* on the *Nagapāñcamī* day. *Mendt* is also used by ladies during the 7th, 8th and 9th months of their first pregnancy." I am thankful to Mr. Shrigondekar for this information. It is curious to note how this foreign shrub, *Mendt*, should get settled in India for more than a thousand years and also get identified with Indian life and culture, with its great capacity for absorbing all good and useful elements of foreign cultures.

Śrīkanthadatta (c. A. D. 1240) in his comm. on Vṛnda's *Siddhayoga* (*Ānandaśrama*, Poona, 1894, p. 304) equates मद्यन्तिका with "मेहरी" in explaining an unguent (अङ्गराग) mentioned by Vṛnda (मन्त्राचार्यादिभिः).

38. Some Notes on the History of the Almond (Badām) in India Between c. A. D. 100 and 1900*

Among nuts of great nutritive value the almond plays an important role. The Indian gymnasts are in the habit of eating almonds daily on account of their strength-giving properties. The almonds are largely used in Indian confectionery and cookery. The physicians also prescribe preparations of almonds for their patients after certain stages of recovery from serious types of illness. In view of this importance of the almond in Indian life and culture it is worth while recording some notes on the history of the almond in India on the strength of Indian sources.

The Marathi Dictionary *Śabdakośa* by Y. R. Date and C. G. Karve, Poona, Vol. V (1936), p. 2215, records the word *badām* in the sense of almond but does not give any usages of the word which might enable us to determine the exact time when the *badām* became current in the Marathi language. This Dictionary records *badām* as the Persian word for the almond from which the Marathi word *badām* is evidently derived. I shall now try to trace the history of *badām* in the Sanskrit sources.

(1) Bhāvamīśra (c. A. D. 1550) mentions about "150 drugs (in his *Bhāvaprakāśa*) more than are found in *Dhanvantari Nighaṇṭu*, such as *Akiphena* (opium), *Khakhas* (poppy seeds), *Kusumba* (safflower), *Methica* (fenu-greek), *Vatavairi* (almond) etc."¹

(2) K. M. Vaidya records the following references to *Vatāma* (=almond) on p. 513 of his *Aṣṭāṅgahydayakośa*, Trichur, 1936 :—

(i) The *Aṣṭāṅgahydaya* of Vāgbhaṭa (about A. D. 850 according to Prof. Dinesh Chandra Bhattacharya)² refers to *Vatāma* in the

* *Annals* (B.O.R. Institute), Vol. XXIX, pp. 99-106.

1. See pp. 119—20 of *Aryan Medical Science* by Thakore Sabeo of Gondal, London, 1896.

2. See p. 135 of *Indian Historical Quarterly* (June 1947). Prof. Bhattacharya rejects Dr. Hoernl's chronology for medical works and records his own tentative scheme as follows :—

Before A. D. 600 — Haricandra.

Between A. D. 600 and 900 — Āyurvedasāstra, Bindusāstra, Siddhasāstra etc.

About A. D. 850 — Vāgbhaṭa.

About A. D. 875-900 — Jejjala.

A. D. 900-925 — Mādhavakara, who comes after Jejjala according to Nirṇaya.

About A. D. 950 — Candrapā.

A. D. 975-1000 — Vṛndakupḍa.

A. D. 1040-1050 — Cakrapāṇi.

Sātrasthāna, chapter 6, verses 120 and 123 (Pages 110 and 111 of N. S. Press Edition, 1939) :—

“वातामाभिपुका षोडशकुलकनिकोचकम्” ॥१२०॥

“वातामायुष्यवीर्यं तु कफपित्तकरं हरम्” ॥१२३॥

Hemādri comments :— “वातामायुष्यमायान्-उत्तरापथे प्रसिद्धम् । वातामः-निश्चयपुरजन्तु फलम् । आषोड मदनकलहरं मध्ये किञ्चिदुन्नतरेणम् । निकोचक-अष्टोत्त-फलहरम् । विषालं चारुफलम् ।

(ii) The *Bhāvaprakāśa* gives the names of *vatama* as follows :—

“वातादौ वातवैरी स्थानेनोपमकलस्तथा”

and also mentions its properties :—

“वाताद उष्णं क्षुत्तिग्न्यो वातमः शुक्रकृद् गुहः ।

वातादमग्ना मयुरो हृष्यः पित्तानिलापहः ।

स्निग्धोष्णः कफहन्नेष्टो रक्तपित्तकारिणाम् ॥”

(3) The *Aṣṭāṅgasamgraha* of Vāgbhaṭa refers to *Vatama* in the following verse :—

“वातामाभिपुकाषोडशकुलकनिकोचकम् ।

उष्णार्थं विषालं च बृंह्यं गुहं शीतलम् ॥१७०॥”

(*Sātrasthāna*, edited by V. R. Kinjawadekar, Poona, 1940, p. 62, chap. VII—अष्टाङ्गसंग्रहोपनिषद्). The properties of *Vatama* are referred in the following line of verse 176 :—

“वातामायुष्यवीर्यं तु कफपित्तकरं हरम् ।”

According to Hoernle Vāgbhaṭa I, the author of the *Aṣṭāṅgasamgraha* belongs to about A. D. 625, while Vāgbhaṭa II, the author of the *Aṣṭāṅgahṛdaya* belongs to 8th or 9th cent. A. D. Prof. Dinesh Chandra Bhattacharya does not believe in this theory of two persons of the name Vāgbhaṭa. He believes that the *Aṣṭāṅgahṛdaya* and the *Aṣṭāṅgasamgraha* are the works of one author Vāgbhaṭa, who flourished about A. D. 850.¹

(4) The *Suśrutasaṃhitā* (*Sātrasthāna*, chap. 46, p. 228 of N. S. Press Edition, Bombay, 1938) mentions *Vatama* in the following line :—

“वाताम—अषोड—अभिपुका—निचुल—पित्तु—निकोचक—प्रभृतीनि ॥१८७॥”

1. See *Annals* (B. O. R. Institute, Poona), Vol. XXV, pp. 217-230,

The commentator Dallāṇa (c. A. D. 1200 according to Dinesh Chandra Bhattacharya)¹ states that *Vatāma* (almond) and other fruits² mentioned by *Suśruta* belong to *Uttarāpāṭha* or northern region ("वातामा-
लोनि उत्तरापथे जातानि तत्रैव प्रसिद्धानि"). Dallāṇa records the views of other commentators on *Vatāma* and other names of fruits (mentioned by *Suśruta*) as follows :—

“केचिद् व्याख्यानयन्ति —

वातामः—मज्जमपुरस्निग्धो दीर्घाकारः ।

अक्षोडः—मदनफलाकारफलो मये किंचिदुन्नतेरुत्तान्वितः

पर्वतपिष्ठः “अस्त्ररोट” इति लोके ।

अभिपुङ्कः—“अभिपुः” इति लोके ।

निक्षोचकम्—औत्तरापथिकं कोष्ठकफलम् ।

उत्तरापथादवगन्तव्यम् ।”

(5) The *Carakasamhita* (*Sūtrasthāna*, chap. 27, verse 157, p. 161 of N. S. Press Edition, Bombay, 1941) also refers to *Vatāma* (almond) in the following verse :—

“वातामामिपुकाक्षोटपुस्तकनिक्षोचकाः ।

गुरुष्णस्निग्धमधुराः शोढमाणा वलप्रदाः ॥१५७॥”

The commentator Cakrapāṇidatta (c. A. D. 1050) observes :—

“वातामादयः औत्तरापथिकाः ।”

In view of these references to *Vatāma* (almond) in earliest medical texts, the *Suśrutasamhita* and the *Carakasamhita*, as recorded above the statement of *Watt* (*Dictionary of Economic Products of India*, Vol. VI, Part I, p. 343) that *almond* is “not mentioned by older writers” is obviously incorrect.

The statement of Cakrapāṇidatta (c. A. D. 1050), Dallāṇa (c. A. D. 1200) and Hemādri (c. A. D. 1260) that *Vatāma* belongs to *Uttarāpāṭha* or northern region is correct. When Ibn Battuta (A. D. 1325-1354) visited the Governor of Multan he presented this Governor “Some *raisins* and *almonds*.” In this connection he observes :—“These are among the greatest gifts that can be made to them, since they do not grow in their

1. See p. 132 of *Indian Histo. Quarterly* (June 1947)—“Dallāṇa's date is about 1200 A. D., being cited by Hemādri, and himself citing Halasyadba.”

2. *Quintus Curtius* [VII. 4, 26 (18)] speaks highly of “orchards and vineyards of Bactria (Bābīlīka) the heart of ancient Iran which was directly in the great trade route to India. (See p. 3 of *Bactria* by H. G. Rawlinson, Bombay, 1909). The fruits like *paloma* etc. mentioned by *Suśruta* were possibly from ancient Iran where they were produced in abundance.

land and are imported from Khurasan.¹ In the light of this statement we may safely conclude that almonds (*Vatama*) were imported into India from *Uttaranatha* or northern region viz. Persia or Khurasan specifically as stated by Battuta as they were not grown in India. Very probably the trade in almonds and other dried fruits from Persia with India was carried on from great antiquity.² This presumption is supported by the references to *Vatama* (almonds) in the *Carakasamhita* and the *Suśrutasaṃhita* as we have noted above. The continuity of this trade is further vouched by Bernier,³ who mentions that "*Hindustan consumes an immense quantity of fresh fruit from Samarakand, Balī (Balkh), Bocara and Persia, such as melons, apples, pears, and grapes,*" "and likewise dried fruits, such as *almonds, pistachio, and various other small nuts, plums, apricots, and raisins.*" It is worth while tracing the history of foreign⁴ dried and fresh fruit imported into India from ancient times to the present day by sea and land. The early Sanskrit medical texts and their voluminous commentaries, if studied minutely, will yield ample material for such a study.

(6) Vaidya Bapalal G. Shah in his *Nighaṇṭu Ādarśa*, Vol. I (Ahmedabad, 1927), pp. 479-480 quotes the following verses from the *Bhāvaprakāśa* (c. A. D. 1550) and from the *Madanapālā nighaṇṭu* (c. A. D. 1375) :—

भावप्रकाशः— "वाताद् उष्णं मुनिर्न्धो वातमः शुक्रहृत् शुक्रः ।

वाताद्भञ्जा मयुरो हृद्यः पित्तानिलापहः ॥ "

etc.

मदनपालनिघण्टु—

"वृषाभमुष्णं मुनिर्न्धो वातमः शुक्रहृत् शुक्रः ॥ "

निघण्टुलकार—

"वातमः शरकः चोष्णो शुक्रमः कफहृत् ॥" etc.

1. Vide p. 189 of *Travels* ed. by H. A. R. Gibb, London, 1939.

2. Compare the anecdote about Syrian figs and raisin wine sent by Antiochus Soter of Syria to Bīdusāra (B. C. 298) the father of Emperor Aśoka. This anecdote is "a tangible proof of the familiar intercourse between the Sovereign of India and his ally in Western Asia" observes Vincent Smith (See p. 147 of *Early History of India*, Oxford, 1914).

3. Vide pages 203-234 of *Bernier's Travels* (A. D. 1656-1668), Constable & Co., London, 1891.

4. The *Rajānighaṇṭu* (Anandashram, Poona, 1896) of Narabari (c. A. D. 1450) mentions a variety of grapes from *Uttarapatha* :—

Page 179 — वृषाभः — "वृषाभः शरकः कपित्ता सा पलोत्तमा । स्वदुपाका मयुरा
मृदीका गोस्तनी स्पृष्टा ॥" etc.

It is a matter for investigation whether any almond trees were cultivated in India between c. A. D. 1375 when the *Madanapalanighanṭu* was composed and c. A. D. 1550, the date of the *Bhāvaprakāśa* of Bhāvamītra. I may here record the evidence of *Ain-i-Akbari* (c. A. D. 1590) regarding the almond as follows :—

Page 61 (Vol. I of Eng. Trans. of *Ain-i-Akbari* by Francis Gladwin, Calcutta, 1897).

— “*The Fruiterer*—His Majesty is exceedingly fond of fruit, and by the great encouragement he has given to the cultivation of fruit-trees, skilful people have come with their families from Persia and Tartary and settled in this country.”

— “..... peaches, almonds, pistachios, pomegranates and many other fruits, have been introduced into Hindustan.”

Page 63 — In the list of *Tartarian Fruits* almonds are mentioned as follows :—

“ Almonds — 28 Dams per Seer
Almonds in the Shell — 11 Dams per Seer.”

The above evidence warrants an inference that almonds were not grown in India prior to Akbar's reign, but Akbar encouraged their cultivation¹ in India along with the cultivation of many other Tartarian fruits by bringing expert horticulturists from Persia and Tartary.

If the reference to *Vātāma* (almond in the *Carakasamhitā*) is genuine we can compare it to the references to the almond made by Pliny the Elder (A. D. 23-79) in his *Natural History* (Books XII-XVI Trans. by H. Rackham, Loeb Classical Library, London, 1945). In particular the following remarks of Pliny on the almond are noteworthy :—Page 351—Books XV-XXIV, 88-91 :—

“ A third variety of the nut class is the almond, which has an outer integument like that of the walnut, but thinner, and also a second covering consisting of a shell, but the kernel is unlike a walnut's in its breadth and its hard part is more bitter. It is doubtful whether this tree existed in

1. A. K. Nairne in his *Flowering Plants of Western India* (London, 1894, p. 107) mentions the almond tree, *badām*, *Prunus amygdalus* as cultivated in the Deccan, along with the Strawberry, the peach tree and various roses.

Italy in the time of Cato,¹ as he calls almonds "Greek nuts" a name which some people also retain in the class of walnuts. At the present day the almond of Thasos and Alba are famous, and two kinds grown at Taranto, one with a brittle shell and the other with a hard shell which are very large in size and very little rounded in shape ... the pistachio (see Book XIII, 51, §83). This also was likewise first brought into Italy at the same time and it was simultaneously introduced into Spain by Pompeius Flaccus, Knight of Rome, who was serving with Vitellius."

Page 479 — "In the actual neighbourhood of Rome Chestnuts and Cherries only grow with reluctance and the peach-tree round Tusculum and almonds are laboriously grown from graft, also Tarracina teems with whole woods of them."

The cultivation of almond trees in Italy many years before the time of Pliny is conclusively proved by the foregoing extracts. Unfortunately we have no means of determining if the almond trees were cultivated in India during the first few centuries of the Christian era, during which the early medical texts of Caraka and Susruta, which mention Vatāma (almond) and its properties, were composed. So far I have not traced any references to Vatāma in Sanskrit non-medical texts, early or late.

(7) Kāṭbhāṭ in his Nighaṇṭusamgraha (Junagadh, 1893, pp. 542-543) quotes verses about almond from the Bhāvaprakāśa, Madanapālanihaṇṭu, Nighaṇṭaratnākara. He quotes the following verse of Śivadatta :—

“वालादीमिष्टपन्नास्यान्नेत्रोपमफलस्तथा ।”

मञ्जरीकुसुमरत्नेव दीर्घसिन्धुदलो द्रुमः ॥ इति शिववृत्तः”

1. Smith's *Smaller Classical Dictionary* (ed. by Blakeney, London, 1900), pp. 134-135, records two persons of the name Cato viz.

(1) *M. Porcius Cato* or Cato Major the Censor (born B. C. 234 and died in B. C. 149 at the age of 85) wrote several works, of which only the *De Re Rustica* on agriculture has come down to us.

(2) *M. Porcius Cato*, great grandson of the above Cato was born in B. C. 95. He was an adherent of the Stoic School and noted for his rigid morality. He put an end to his own life to avoid falling into the hands of Caesar, his enemy.

Possibly Pliny refers to Cato Major, the author of *De Re Rustica*.

2. My friend Diwan Bahadur K. M. Jhaveri in his letter to me of 24-6-49 makes the following remarks about the almond :—

“The information sent by you...*badam*, as we call it in Gujarati you say is *badam*; you also know that eyes are compared to *badam* (cf. the epithet “*netropamaphala*” and a weeping eye is called “*सिन्दु फलान् बादाम*” in Persian. Thus it has passed from a dried nut into a poet's fancy.”

Possibly this verse belongs to the *Śivakośa*, a medical lexicon by Śivadatta, known as Karpūriya Śivadatta (Between A. D. 1625 and 1700 — see my article in the *Poona Orientalist*, Vol. VII, Parts 1 and 2, pp. 66-70).

(8) Having recorded some data about the history of the almond (*vatāma*) in India as revealed by Sanskrit medical texts we are in a position to consider its history outside India. In this connection the following notes from the chapter on Almond from "*Sino-Iranica*" by Berthold Laufer, Chicago, 1919, pp. 405-409, will be found very illuminating :—

Page 405 — Iran was the centre from which the almond (*Amygdalus Communis* or *Prunus amygdalus*) spread to Europe, China, Tibet and India. In India the almond is cultivated occasionally in Kashmir and the Panjab, where its fruits are mediocre. "It was doubtless imported from Iran." The almond yields a gum, which is still exported from Persia to Bombay and thence re-exported to Europe. The almond grows spontaneously in Afghanistan, the Zarafshan valley, and in the Chotkal mountains as also in Aderbeidjan, Kurdistan and Mesopotamia.

— The Greeks derived the almond from Asia Minor and from Greece it was apparently introduced into Italy, The Persian kings made use of the almonds daily. The almond is mentioned in *Pahlvi* literature.

— The Arabic name of the almond is *lewze lauz*. Under this name Abu Mansur (A.D. 970) in his Persian pharmacopoeia mentions its properties. He also mentions *sweet almond* (*badām-i-Strin*) and *bitter almond* (*badām-i-talx*).

— Bitter almonds were used as a currency in Gujarat, where they were brought from Persia in the time of Aurangzeb. There is no fear that children will amuse themselves by eating them (See Tavernier's *Travels*, Vol. I, p. 27).

Page 406 — Names for almond in different languages :—

- (1) Chinese — *p'o-tan*, *bwa-dam* (derived from Iranian).
- (2) Middle Persian — *vadam*.
- (3) New Persian — *bādām*.
- (4) Kurd — *badem*, *beiv*, *baif*, "almond-tree."
- (5) Tibetan — *ba-dam*.
- (6) Uigur and Osmanli — *badam*.
- (7) Sanskrit — *vatāma* or *badāma*, derived from the Middle Persian.

— Arab merchant Soleiman (A. D. 851) mentions almonds among the fruit growing in China.

Page 409 — The old tradition concerning the origin of the almond in Persia is still alive in modern Chinese authors.

— "It may be of course, that the almond has shared the fate of the date-palm, and that its cultivation is now extinct in China."

I hope the data collected in this paper about the history of the almond (*badām*) in India and outside would be useful not only to the students of the history of Indian Materia Medica but also to the students who care to investigate the history of Indian culture and its indebtedness to other countries in direct or indirect cultural contact with India for more than two thousand years.

39. The Use of the White Mustard in Ancient and Mediaeval India*

Vaidya Bapalal G. Shah in his *Vegetable Materia Medica (Nighaṇṭu Ādarsa)* Part I, Ahmedabad, 1927, pp. 77-78, records some Sanskrit medical texts dealing with the use and properties of the *saṛṣapa*¹ (mustard) plant and its products. We notice in these texts two kinds of *saṛṣapa*: (1) *gaura* (white) and (2) *rakta* (red). I am concerned in this paper with the white variety and its uses as known to ancient and mediaeval India. The following table will show at a glance the references to the white mustard and its uses as vouched by medical texts, early and late:—

Text	Chronology	Use & Properties of <i>gaura-saṛṣapa</i>
<i>Hārta-Saṃhitā</i>		-Prescribed against (1) <i>apasmāra</i> (epilepsy) (2) <i>unmāda</i> (lunacy)
<i>Dhanvantari-Nighaṇṭu</i>	Before 800 A. D.	-Prescribed against (1) <i>kṛimī</i> (worms) (2) <i>āma</i> (indigestion) (3) <i>kaṇḍa</i> (itching or itch) (4) <i>kuṣṭha</i> (leprosy) (5) <i>śruti-śrṅga-anilārti</i> (certain diseases of the ear and head)
<i>Aṣṭāṅga-Saṃgraha</i> (<i>sūtrasthāna</i> , ch. 8, vv. 113, 126)	8th or 9th cent A.D.	-White mustard (<i>sveta saṛṣapa</i>) used in an antidote against poison called <i>saumya</i> (v. 113) -White mustard in the decoction to be added to water for bath (v. 126)
<i>Viṅga-Sena</i>	Before 1200 A. D.	-Levigated powder of <i>gaura-saṛṣapa</i> pre- scribed against <i>vāta-rakta</i> (acute gout)
<i>Bhāvaprakāśa</i>	c. 1500 A. D.	-Properties of <i>saṛṣapa</i> of both red and white varieties are mentioned. Both varieties are capable of curing wounds (<i>vraṇa</i>), itch (<i>kaṇḍa</i>), leprosy (<i>kuṣṭha</i>), worms in the abdomen (<i>koṣṭha-kṛimī</i>) and epilepsy (<i>graha</i>) ² . The white variety is the best (<i>gaurā varo mataḥ</i>). - <i>gaura-saṛṣapa</i> is called <i>siddhārtha</i> .

*Dr. Johannes Nobel Comm. Volume, 1959, pp. 61-66,

1. *Brassicæ campestris* (Latin name) is recorded by Bapalal. White mustard (*Sinapis alba*) is mentioned in Waring's *Pharmacopoeia*, 1868, p. 23.

2. Apte in his *Sanskrit English Dictionary* mentions *graha-āmagya* = epilepsy.

It will be seen from the above table that white mustard (*gaura-sarṣapa*) has been prescribed by Indian medical texts against many diseases on account of its therapeutic properties. I have not tapped all the medical texts for evidence on this point but the evidence collected in the above table is sufficient to prove that this white variety of the mustard was a regular item in Indian materia medica from about the first century of the Christian era onwards.

Sanskrit lexicons also refer to the white mustard. The *Amarakośa* (between c. 500 and 800 A. D.) mentions *sarṣapa* and its two other names, *tantubha* and *kadambaka* (kāṇḍa II, varga 9, v. 17 — p. 353 of the N. S. P. edition, Bombay, 1905). It expressly states that *siddhārtha* is the name of white mustard. Bhānuji Dīkṣita (c. 1630 A. D.) in commenting on the above reference quotes the lexicon of Rabhasa, which gives two names of white mustard, viz. *raṅgoghna* (capable of killing demons) and *bhātanaśana* (capable of destroying ghosts). Bhānuji also quotes the lexicon *Viśvakośa* (1111 A.D.), which refers to *sita-sarṣapa* or white mustard. This reference is found on p. 127 of the Banaras edition of the *Viśvakośa*, 1911. Even today there is a belief current in India that mustard is capable of warding off evil. Salt and mustard seeds are waved round the faces of babies and thrown away when these babies with their mothers enter a house for the first time after their birth (see my paper on this topic in the *Quarterly Journal of the Mythic Society*, vol. XXVI, pp. 313-314). In Apte's *Sanskrit-English Dictionary* (p. 73 of the 1957 edition by myself and C. G. Karve) the name *anadya* for white mustard is recorded.

The use of *gaura-sarṣapa* or white mustard in Indian life of the 7th cent. A. D. is vouched by the following references to it in the *Kadambari* of the eminent poet Bāṇa of King Harṣa's court (606—648 A.D.) :—

(1) *Kadambari*, Part I, edited by P. Peterson, Bombay, 1889, p. 68.—Description of the bed-chamber of Vilāsavati, who was pregnant. She was resting upon a bed (*śayana*) upon which were scattered here and there white mustard seeds (*ītasato-viprakīrṇa-gaura-sarṣapam*..... *śayanatalam*).

(2)—Do—, p. 68.—Description of the auspicious ceremony of *āvataraṇa* (wavinground) performed before Vilāsavati by old ladies of the harem with many auspicious things, among which white mustard mixed with *gorocana* (*gorocana-miśra-gaura-sarṣapaiḥ*) was used.

(3)—Do—, p. 68.—Description of the king's intense longing for the birth of a son. He visualizes a son giving delight to his heart by his "curly hair dyed tawny with (the herb-mixture called) *sarvaṇḍadhi*, with

a small quantity of ashes mixed with white mustard applied over his head" (*śalumi vinyasta-gaurasarsaponmīśra-bhūtilēśo*). It appears from this reference that white mustard was applied to the heads of children both for its medical properties and its supposed capacity to protect children from evil.

In the above references to the use of white mustard in Bāna's *Kadambari* we find that white mustard was used not only as an auspicious thing but mainly on account of its supposed power to ward off evil and perhaps to scare away evil spirits from the bed-chamber of the pregnant lady. This use of white mustard in the 7th cent. A. D. justifies the names *raśogha* and *bhūtanāśana* given by the lexicon of Rābhata to the white mustard as already noted by me in this paper.

The *Carakasamhita* (between 1st and 3rd cent. A. D.), one of the earliest medical texts, deals with the care of the new-born child. Certain performances for protecting the child and the mother are prescribed in the *śāstrasthāna*, chap. 8, sect. 47. White mustard (*gaura-sarjapa*) and other corns should be spread in the *sūtikagara* (room in which the mother and the child are kept). In section 50 of this chapter the *Carakasamhita* prescribes the use of white mustard in the water for the bath of the mother on the tenth day from delivery.

In the Indian system of weights recorded in the *Manusmṛiti* (between 2nd cent. B. C. and 2nd cent. A. D.), chap. VIII, vv. 132-137 give the following weights:-

The smallest unit of weight is the grain of dust visible in the sunbeam (*trasareṇu*). 8 of these grains = 1 *likṣa*. 3 *likṣa* = 1 grain of black mustard (*rajasarjapa*). 3 of these = 1 grain of white mustard (*gaura-sarjapa*). 6 of these = 1 grain of barley (*yava*). It is the grain of barley which is the theoretical unit of weight.¹ This use of the white mustard in the Indian system of weights about two thousand years ago coupled with its uses in Indian medicine recorded above amply show that the white variety of the mustard was cultivated in India very early along with its other varieties, red or black.

On account of the curative and purificatory properties of the *gaura-sarjapa* (white mustard) its use has been prescribed by the early texts on Hindu *dharma-śāstra*, some of which were composed prior to the Christian era:-

1. See p. 69 of the *Political History of India* by Jean Filliozat. Engl. Translation by Philip Spratt, Calcutta, 1957.

(1) We have already noted the reference to *gaura-sarjapa* (white mustard) as a unit of weight given in the *Manusmṛti* (chap. VIII, vv. 132-137). In chapter V, verse 120, of this work we find a reference to the purification of linen garments by the use of the white mustard (*kṣaumanām gaura-sarjapāḥ*). The commentaries explain this reference as follows:-

- (i) Kullukabhaṭṭa states that *gaura-sarjapa* here is equal to pounded white mustard (*piṣṭa-śveta-sarjapa*).
- (ii) Raghavananda states that the linen garments are purified by washing them with white mustard powder (*piṣṭa-śveta-sarjapa-prakṣālanāt-(suddhiḥ)*).
- (iii) Rāmacandra states that the linen garments should be washed with water mixed up with white mustard (*gaura-sarjapa-sahitodakāḥ*).

(2) The *Āpastamba-Dharmasūtra* (between 600 and 300 B. C.), edited by Bühler, B. S. Series, 1932, II, 8, 19, 1st sūtra, p. 81, states that a man should take his food after washing his hands and feet with water mixed up with the powder of white mustard (*gaura-sarjapāṇām cārṇāni karayitva taiḥ pāṇipādam prakṣāly mukham karṇau*). On p. 184 we find Haradatta's comments on this reference. He explains the word *prāśya* in the text to mean "swallow the remainder of the mustard powder (water)". The variant *prāśya* for *prāśya* means "should scatter away (*vikaret*)" the remainder of the mustard-powder water.

(3) The *Vasiṣṭha-Dharmasāstra* (ed. by A. A. Führer, Bombay, 1883, p. 13), chap. III, sūtra 55, states that linen garments are purified by the use of the paste of white mustard [*gaura-sarjapa-kalkena kṣaumanānam (saucam)*].

(4) The *Yājñavalkya-Smṛti* (between 1st cent. B. C. and 3rd cent. A. D.), I, 276, prescribes the use of the paste of white mustard (*gaura-sarjapa-kalka*) in the worship of God Viṣṇu. This paste mixed with ghee is to be applied to the image of the god after it is bathed. Verse 283 mentions the use of the oil of mustard (*sarjapa-taila*) on the head of the image. Verse 289 states that mustard (*sarjapa*) should be offered to the image along with flowers etc. (see pp. 564-567 of vol. I of the *Yājñavalkya-Smṛti*, Anandāśram Series, Poona, 1903).

(5) The *Baudhāyana-Dharmasūtra* (Kāśī Sanskrit Series, Benares, 1934, p. 39), I.8, 36 (sūtra), states that soap-nuts should be used for cleaning woolen blankets (*kutapa*); paste of white mustard (*gaura-sarjapa-kalka*) should be used for washing linen garments.

Berthold Laufer in his *Sino-Iranica* (Chicago, 1919), pp. 380-382, makes some remarks about the mustard and its species under the title *Brassica*. The following points in these remarks are noteworthy:—

(1) There are two species of mustard, viz. (i) *Brassica* (or *Sinapis juncea*) and (ii) *Sinapis alba*.

(2) *Sinapis alba* was imported into China as late as the Tang period.

(3) *Sinapis alba* is first mentioned by Su Kun in his work (about 650 A. D.) called *Pent S'ao* as coming from Western Zim (Iranian regions).

(4) *Sinapis alba* was conveyed to China over the land-route of Central Asia.

(5) *Sinapis alba* was foreign to the Tibetans also. They call it "white turnip" (*yihs-kar*).

(6) *Sinapis alba* is not indigenous in India. Watt in his *Commercial Products of India* (p. 176) says that "if met with at all it occurs in gardens only within the temperate areas, or in upper India during the winter months; it is not a field crop."

(7) Abu Mansur notes five varieties of *Brassica* under the Arabic name *karnab*.

(8) The Persians spread the species of *Brassica* to Tibet, the Turks and Mongolia.

(9) *Brassica rapa* is cultivated in Persia and many parts of India during the dry season (October to March).

(10) Yi Tsin, the Buddhist pilgrim of the 7th cent. A. D., makes some comments on the Indian and Chinese varieties of *Brassica*. He says that India produces in sufficient quantity the varieties of *Brassica*, one with white and the other with black seeds. He also refers to the oil pressed from *Brassica* seeds for culinary purposes.

The foregoing notes, though scanty, are sufficient to prove the existence and use of the white mustard in ancient and mediaeval India for more than two thousand years. The statement of Watt that it is not indigenous in India needs to be examined. The suggestion of Laufer that it originated in the Iranian regions like many other cultivated plants needs also to be proved. I shall feel thankful if the readers of this paper throw more light on the history of the white mustard in India prior to c. 500 B. C. on the strength of Indian or foreign sources.

40. Some Notes on the History of Tea*

Dr. N. N. Sen Gupta published a year ago a *Note on the History of Tea* in the *Journal of the U. P. Historical Society*¹ in which he invited the attention of scholars to a reference to tea in the Tibetan biography of the great Buddhist scholar Atisa of Vikramasila, who visited Tibet upon the invitation of the Tibetan King by the middle of the 11th century. Dr. Sen Gupta observes² at the conclusion of his note that tea was unknown to Atisa but was a common beverage in Tibet. Recently Dr. Radha Kumud Mookerji has written another *Note on the History of Tea*³ in the same Journal in which Dr. Sen Gupta's Note appeared. In this Note Dr. Mookerji points out the reference to *Tea* by I-Tsing, the Chinese pilgrim who travelled in India between A. D. 671 and 695⁴ and observes:— "Even as far back as the Seventh Century the Indians took kindly to tea as an antidote to cold according to Ayurvedic texts⁵ then current and as these texts were much earlier than I-Tsing's visit to India, the use of Tea in India is to be dated much earlier." In view of the two notes on the history of tea I would like to record in this paper some of my own notes on the subject which I had collected some time ago.

(1) There is another reference to *tea* in I-Tsing's Record not pointed out by Dr. Mookerjee. It appears on p. 90 of Takakusu's Translation as follows:—

Chapter XVII—Proper occasion for salutation—"Firstly the impurity contracted through eating and drinking. Through the eating of anything or even the swallowing of a dose of medicine one is unfit for

**Journal of S. M. Library*, Tanjore, Vol. I, No. 2, pp. 5-8.

1. Vol. XI, Part II, p. 77—The king's representative presented Atisa with about 5 ounces of gold, one tray full of treacle and tea prepared in Tibetan manner poured in a cup decorated with the figures of the Chinese dragon. The conversation between the King's representative and the great Buddhist Scholar refers to 'tea' as "celestial drink" 'Cha' and we are also told that "the monks of Tibet also drink it" ("See *Buddhist Text Society Journal*, Pt. I, 1893, p. 27).

2. *Ibid.*

3. *Jour. U. P. Hist. Res. Soc.* Vol. XII, Pt. I, pp. 99—100.

4. Takakusu's Translation of *I-Tsing's Record*, p. 135. "Tea is also good. It is more than 20 years since I left my native country (i. e. China) and this alone as well as the ginseng decoction was the medicament to my body and I had hardly any serious disease."

5. I am not aware of any reference to *Tea* in the Ayurvedic texts now current.

mutation before one rinses one's mouth and washes one's hands. Even when one has drunk syrup, water, tea or honeywater or had ghee or moist sugar, one is equally unfit before one duly purifies oneself."

(2) In the article on Tea in the *Encyclopaedia Britannica*¹ we are informed that the early history of tea is traditional. There is a Chinese legend that Emperor Shen-nung (2737 B. C.) discovered the virtues of Tea. There is also a tradition in China that the knowledge of Tea travelled eastward to and in China having been introduced in A. D. 543 by Bodhidharma, an ascetic who came from India on a missionary expedition. "Bodhidharma vowed that he would contemplate the virtues of Buddha, through 9 unsleeping years." "The use of Tea in China in the middle of the 9th century is known from Arab sources. In Japan the cultivation of tea was established in the 9th century.

(3) In a pamphlet² about the *Complete Story of Tea* by Mr. William H. Ukers the contents recorded include among other things the following :—

- (i) First English Translation Digest of the *Cha-ching*, the earliest work on Tea—A. D. 780.
- (ii) Tea's conquest of Java and Sumatra.
- (iii) The far-flung kingdom of India Tea.
- (iv) Tea's triumph in Ceylon.
- (v) The Glorification of Tea in Japan.
- (vi) Tea in Fine Arts and Tea in literature.
- (vii) A Tea Chronology of over 500 Dates.
- (viii) A Tea Dictionary of over 400 Definitions.
- (ix) A Tea Thesaurus.
- (x) A Tea Bibliography of over 2000 Authors and Titles.
- and (xi) Index of over 10,000 references.

As the above publication is not accessible to me I am unable to say what references it contains to Tea in India, earlier than those made by I-Tsing (A. D. 671—695).

1. Fourteenth Edition, Vol. 21, p. 857. The *Mahāvastu* by S. V. Kethar (Vol. XIII—XIV) contains an article on Tea but it contains no historical information except a reference to the effect that a Chinese Emperor (A. D. 549—605) was advised by a Buddhist monk to use Tea as medicine against headache. I have no means of verifying the statement.

2. Published by the Tea and Coffee Trade Journal Co. 79 Wall Street, New York, U. S. A. The price of the 2 Vols. of *Story of Tea* is £ 3—5—0 or 25 dollars net. Mr. Ukers has also published a *Story of Coffee*.

(4) To corroborate the Tibetan reference to Tea in the middle of the 11th Century pointed out by Dr. Sen Gupta I have found a reference to Tea in the *Life and Hymns of Milarepa*,¹ which is as follows :—

"Enjoying wine and tea in merriment,
is drinking juice of aconite
To drink it is to drown
Salvation's Vital Cord"

Jetsun Milarepa was the greatest of the Tibetan Saints. He belonged to Kargyutpa Apostolic succession founded by Tilopa in 950 A.D. Milarepa was the fourth in this succession and lived between A. D. 1050 and 1135.²

(5) Though I-Tsing mentions Tea in India in the 2nd half of the 7th century we don't find its existence in Bengal about A. D. 1400. In the *Mahuan's account of the kingdom of Bengala*³ translated from the Chinese by Mr. Geo. Philips he makes the following reference to the *absence of tea* in Bengal. —

"Not having any tea they offer their guests the betel-nut in its place."

Mahuan was an interpreter attached to the suite of Cheng Ho who led an expedition to the Indian coast with 62 ships and 30,000 soldiers. This event took place in A. D. 1405-6.

(6) For later references to Tea and its introduction into England and other countries of Western Europe reference is invited to *Hobson-Jobson*⁴ where we are told that the Tea-shrub is mentioned in the ancient dictionary *Rhya* which is believed to date long before the Christian era and a commentator on this work of the 4th century A.D. describes it

1. Vide p. 576 of *Buddhist Bible* by Dwight Goddard (2nd Edn. 1938) page 588 — "Tea and Chhang"; page 589 — "lips dipped in Tea and Chhang."

2. Ibid, p. 674. See also p. 57 of *Tibetan Yoga* by Evans-Wentz, Oxford Uni. Press, 1935. On p. 591 of the *Buddhist Bible* the following chorus of a Song in the *Life and Hymns of Milarepa* contains a reference to Chinese Tea :—

"The splendid kitchen, well arranged, with goodly stock of Chinese Tea, for three ;
The busy hands of many youthful novices for four ;
These four, if needed, thine, elder brother could procure."

3. Vide p. 531 of JRAS, 1895. Though tea was not found in Bengal by Mahuan he refers to numerous articles of food and drink, some of which may be noted here :— Rice, wheat, amamam pulse, millet, ginger, mustard, onions, brinjals, wines from coconut, rice, toddy and kadjang, jack-fruit, mangoes, pomegranates, sugarcane, granulated sugar, white sugar preserved fruits, plantains. He also refers to "white paper from the bark of a tree which is smooth and glossy like a deer-skin."

4. By Yule and Burnell, London, 1903, pp. 905 ff.

adding "From the leaves can be made by boiling a hot beverage." The first distinct mention of tea-cultivation in Chinese history is a record of the Tang Dynasty (A. D. 793) which refers to duty on tea in that year. The Arab traders of the next century also refer to tea as subject to a royal impost. The dates of references to Tea given in the *Hobson-Jabson* are as follows :—A. D. 851, c. 1545, c. 1560, 1565, 1588, 1598, 1611, 1616, 1626, 1631, 1638, 1658, 1660, 1667, 1672, 1677, 1688, 1690, 1726, 1789, 1844. Baldaeus (A. D. 1672) devotes five columns in his work to Tea and its use and abuse in India.

I believe, the notes¹ on tea and its history recorded above would be found useful for the student of this beverage which has now caught both the hemispheres in its firm grip, too tight to be relaxed by the advice of moralists and economists.

I have to add the following reference to tea found by me after this paper was drafted :—

1. In A. D. 1009 Kio-Kie, a S'ramana of Central India went to China. He took with him some relics, an impression of the Vajrasana and a few leaves of the sacred tree. When he returned to India he received by an imperial decree a Kasaya-cloth to be offered to the Vajrasana of Mahabodhi. He also received silver, Tea and fruits for his route (Vide p. 323 of *Indian Literature in China* by P. K. Mukherji, Calcutta, 1931).

On p. 392 of Rajawade's *Sources of Maratha History, Khajurda VI*, there is a reference to *tea-cups* ("चपाहा व्यापवाणि चपाहे") which are mentioned as "not quickly getting hot" ("नल्पर न तापत चपे"). Possibly porcelain tea cups are meant. This reference is dated Saka 1676 = A. D. 1754.

In letter No. 88 dated 16th June 1762¹ (*Peshwa Daftar Selection No. 32*—Private Life of Later Peshwas—P. 49) there is a reference to *tea-pot* ("चपली"). The writer Naro Appaji states that the tea-pot or kettle has been sent to the fort of Simbadga. It will be ordered back and then sent to the Purandar fort.

41. The History of the Aksayavaṭa
(Undecaying Banyan Tree)
at Prayāga and Gayā as revealed by
some Sanskrit texts —
Between the First Century A.D. and 1900*

When the Silver Jubilee of the B. O. R. Institute was celebrated on the 4th and 5th of January 1943 the late Prof. V. K. Rajawade, the oldest among the founders of the Institute, was requested to plant a small sapling of the banyan tree (*akṣayya vaṭa*) on the premises of the Institute as a land mark to commemorate the successful growth of the Institute during the preceding twenty-five years and as a visible symbol of its future expanding academic activities in the years to come. Prof. Rajawade agreed to this request made by the Silver Jubilee Celebration Committee and the *akṣayya vaṭa* sapling (about 2½ ft. high) was planted at his hands in a special pit at the western side of the main building of the Institute on 4th January 1943 at sunrise (about 7-30 a.m.) before a distinguished gathering of the delegates from all parts of India as also local visitors to the function.¹ Rev. H. Heras, the celebrated Indologist of the St. Xavier's College, Bombay, was sitting by my side when the *vaṭa* plant was planted. He had read some of my studies in the history of Indian plants and consequently put me the question : "Have you studied the history of the *vaṭa* tree and especially that of the *Akṣayya Vaṭa* (undecaying banyan tree) from Indian or foreign sources ?" I told him that I would some day record a few notes on the history of the *vaṭa* tree in general and on the *akṣayya vaṭa* in particular as suggested by him. Accordingly I began to collect some evidence on this topic and the present note is a part of the evidence collected so far. Unfortunately my friend Rev. Heras is no more to see this note in print ! However, I record here my grateful and respectful thanks to him for his suggestion which occasioned my present inquiry.

The *Vaṭa* plant which Prof. Rajawade planted on the premises of the Institute 14 years ago has grown vigorously and can be seen prominently from the main building of the Institute with its dark green umbrageous expanse.

* *Annals* (B. O. R. Institute Vol. XXXVIII, pp. 82-92.

1. I have published a detailed account of this function in my editorial in the *New Indian Antiquary*, Vol. V, pp. 235-240.

The Institute will some day build a circular stone pedestal round it with an inscription : "The Akṣayaṇa Vāṇa planted by Prof. V. K. Rajwade on 4-1-1943 at the time of the Silver Jubilee of the B. O. R. Institute." After the Silver Jubilee was over I inquired of my friend the late Dr. Birbal Sahani, our great Botanist of the Lucknow University, at whose instance I began my studies in the history of Indian Plants, if he can point out any old Vāṇa tree in India with authentic record of its plantation and growth. He replied that the only Vāṇa tree of this type is that now in the Botanical Garden at Calcutta.

The Marāṭhi *Śabdakośa* by Y. R. Date and C. G. Karve, Poona, 1932, Vol. I. p. 195 observes as follows about akṣayaṇa :—

"अक्षयवृक्ष—The Vāṇa tree on the confluence of the rivers Gaṅgā and Yamunā at Prayāga¹ (Allahabad). It is said that this tree is very ancient and does not die. Such trees are pointed out at other holy places."

The *Mahābhārata* mentions Gayā and the akṣayaṇa there as "famous in the three worlds" (*triṣu lokeṣu viśrutaḥ*). This reference clearly proves that at the time when this reference was made this banyan tree with all its religious significance was an established landmark revered by Hindu pilgrims visiting Gayā. We can also presume that some hundreds of years must have elapsed prior to this reference and posterior to the first planting of this tree at Gayā. No authentic account of the circumstances under which the tree, with its subsequent history of no less than two thousand years, was planted and the person or a body of persons who first conceived the idea of planting it and executed his or their plan

1. See p. 921 of *Indian Companion* by G. H. Khandekar, Poona, 1894. Allahabad (Prayāga) is situated on the left bank of the Jamuā, on the wedge of land formed by its confluence with the Ganges and is distant 390 miles from Delhi..... (It) is a very ancient city..... In the *Mahābhārata* the country round Allahabad bears the name of *Vārāṇasī*, and was the scene of exile undergone by the famous Pāṇḍava brethren. The city or ancient Prayāga was built by the Hindus, and is held sacred by them, about 3 miles from the confluence of the Jamunā and Ganges rivers (a third river, the Sarasvatī runs underground meeting here both the rivers and hence it is *Trivenī*, which can be seen with advantage from the palace in the fort. The waters of both rivers are easily distinguished by the difference in colour. A great religious fair known as the Magh Mela is held in December and January on the plain near the fort..... The present fort and city were founded by Akbar in 1575 A. D.; both the Aryans possessed a holy ancient city here called *Prayāga*..... In the fort near Aśoka's pillar steps lead down to an underground Hindu temple. This building dedicated to Śiva, passes as the place where the river Sarasvatī unites with the Ganges and the Jamunā..... The stump of a banyan tree said to be 15 centuries old and still alive is here the object of worship. The temple also contains the image of a famous saint, named Mahadeva,

in this connection, has come down to us. Was it in a fit of religious fervour that this tree was planted by a Hindu devotee or was it planted by any representatives of a particular Hindu religious sect to commemorate any important event in their history? It is difficult to answer these questions without collecting all evidence from literary and other sources pertaining to the *akṣayaavaśa*.

The verses referring to Gayā and the *akṣayaavaśa* are found in the *Mahabharata* in the *Āraṇyakaparvan* (*Īrthayātraparvan*) edited by Dr. V. S. Sukthankar for the B.O.R. Institute (see p. 292-382, verses 71-73). These verses read as follows :—

“ ततो शर्वा समालाय मन्त्रचारो जितेन्द्रियः ।
अक्षयवृक्षमाप्नोति गमनदिषु भारत ॥ ७१ ॥
तत्राक्षयवृक्षो नाम श्रितु लोकेषु श्रितुतः ।
पितृणां तत्र वै दत्तमक्षयं भवति श्रयो ॥ ७२ ॥
महानद्यानुपत्यय तपयेरितदेवताः ।
अक्षयान्द्राज्जुषाक्षोद्यान्कुलं वेचसमुदरेत् ॥ ७३ ॥ ”

There is a reference to *अक्षयवृक्ष* in the *Āraṇyaka* or *Vanaparvan* (Chap. 95, verses 13-15) in the following extract :—

“ तत्र ते पाण्डवा शोराबाहुर्पास्यैस्तदेवरे ॥
अक्षयवृक्षेन महता वृक्षाक्षयवृक्षो महात् ॥
अक्षये देवयजने अक्षयं यत्र वै फलम् ॥
ये तु तत्रोपवासीस्तु चक्षुर्निमित्तमानसाः ॥ ”

Kṣemendra, the great Sanskrit poet of Kashmir (c. A. D. 1020-1080) also refers to the *akṣayaavaśa* at Gayā in his *Bhāratamañjarī*, an abridgement of the *Mahabharata*. This reference is found in the following verses of the *Āraṇyakaparvan* of the *Bhāratamañjarī* edited by V. R. Nerurkar, Bombay, 1919, p. 57 (पुलस्त्यलोपयात्रा) :—

“ गंगोद्भवं त्रिनयनयिषां चाराणसीं पुरीम् ॥ ६५४ ॥
तां वृक्षाक्षयवृक्षोपेतं पितृसंतांरणीं गमाम् ॥ ६५५ ॥ ”

My friend Shri J. S. Pade of the Oriental Institute, Baroda, in his letter to me of 14-3-1957 has kindly pointed out the following reference to *Akṣayaavaśa* in the *Anuśāsanaparvan* of the *Mahabharata* :—

“ एष्टव्या बहवः पुत्राः ययोकोऽपि शर्वां भजेत् ।
वृषाक्षो प्रपितो लोकेऽवसृज्य करणो वटः ॥ १४ ॥ ”

(See p. 198 of *Mahabharata*, XIII, 88, 14 Chitrashala Press, Poona). My friend Prof. V. M. Bedekar has sent me the following remarks on the above reference :—

“ This reference occurs in the 88th chapter of the *Anuśāsanaparvan*. Therein Yudhiṣṭhira asks Bhīṣma which among the libations offered to the Manes are inexhaustible (अक्षय) or endure for a long time or for eternity.

Bhīṣma enumerates in reply various kinds of non-vegetarian food to be offered in memory of the Manes, which are calculated to secure the satisfaction of the Manes for a period ranging from two months to eternity. While referring to a belief that the offering of a *gāṇa* (goat) to the Manes leads to their satisfaction for all time, Bhīṣma quotes in support a few *gāthas*, which the revered Sanatkumāra had recited to him in a similar connection. In one of these *gāthas* (verse 14) the “अश्वत्थारण्यो वटः” is referred to. This *gāthā* seems to imply that *Gaya*, the sacred place, is specially auspicious and therefore suited for offering libations to Manes in view of its having been the venue of the “unaging Banyan tree” (अश्वत्थारण्यो वटः). “A reference to the Divine Child resting on the extended branch of a huge Banyan tree in the midst of the Great Deluge occurs in the 186th Chapter of the *Aranyakaparvan* of the *Mahābhārata*.

The great sage Mārkaṇḍeya is narrating to Yudhiṣṭhira the story of the Dissolution of the Universe as he had once witnessed it. The whole world was overwhelmed with floods and the whole creation was submerged. In that predicament Mārkaṇḍeya found himself alone walking on the waters of the ocean. Extremely distressed at this awful destruction and feeling lonely and forlorn he kept on swimming to find some refuge (*śaranam*) where he could rest. Then all of a sudden he espied in the midst of that all-encompassing deluge a huge *nyagrodha* tree and there resting comfortably on a gorgeous couch on its extended branch a little child. The pertinent lines run as follows :—

(III. 186), pp. 644-645 of the B. O. R. I. Critical Edition of the *Aranyakaparvan* :—

“ततः कदाचित् पश्यामि तस्मिन् सलिलसंस्पले ।

न्यग्रोधं सुमहान्तं वै मया पृथिवीपते ॥ ८१ ॥

शाखायां तस्य वृक्षस्य विस्तीर्णयां नराधिप ।

पश्येके पृथिवीपाल दिव्यास्त्रयसंस्तृते ॥ ८२ ॥

उपविष्टं महाराजं पूर्णैः दुग्धशयनम् ।

कुलशयनविराशात् बालं पश्यामि भारत ॥ ८३ ॥”

While Mārkaṇḍeya was looking on at this wonderful spectacle in amazement, the child called unto him and gave him shelter inside its stomach. While inside, Mārkaṇḍeya saw before him, contained in the boundless stomach of the child a whole world of kingdoms, rivers, mountains, gods, demons. He roamed in amazement through the boundless interior of the child for hundreds of years. Bewildered he prayed to that God with all his soul. After a while the child opened its mouth and out came Mārkaṇḍeya to see again the same wonderful sight of the child resting on the branch of the *Nyagrodha* :—

“ततस्तस्यैव द्यावायां न्यग्रोधस्य विद्यांते ।

आस्ते मनुजगार्दूल कूलनमादाय वै जगत् ॥ ”

(III, 186. 114)

(See p. 648 of *Ādiparvan*—B. O. R. I. edition).

Mārkaṇḍeya soon overcame his bewilderment and took the tender rosy feet of the child on his head and made his obeisance.

While Mārkaṇḍeya was inside the stomach of the Divine Child, he saw there inside, as already mentioned, the whole world with its kingdoms, cities and rivers. The relevant lines are :—

“ सराष्ट्रनगराकीर्णा कूलानि पश्यामि मेदिनीम् ।

संगां शततुं धीतां च यमुनामप कोशिकीम् ।

चर्मपवती वैश्वती चन्द्रमागां सरस्वतीम् ॥ ”

(III. 186. 92-93)

The first river that is mentioned as meeting the eyes of Mārkaṇḍeya is the *Gaṅga*. This may perhaps be significant in view of the fact that it is the great *Nyagrodha* with which the Divine Child is shown associated and that one such hoary *Akṣaya Vāja* is situated on the bank of the *Gaṅga* at the confluence at Prayaga, though of course Mārkaṇḍeya (or the author of the *Mārkaṇḍeya-Samāsya*) does not explicitly mention it as the *Akṣaya Vāja* or *Nyagrodha*.”

My friend, Dr. M. M. Patkar, Secretary of Sanskrit Dictionary Department of the Deccan College, Poona, has kindly replied to my query about *akṣayavāja* on 4-1-1957 as follows :—

“I give below a reference to the sacred fig tree at Allahabad from the *Śabdaratnasamanvayakośa* of Shabaji (G. O. Series, Baroda, 1932), p. 226. It reads as follows :—

“ रयामः प्रयागस्थष्टे ”

This shows that the name of the tree was रयाम (*śyāma*). This name also occurs in the *Raghuvamśa* (XIII, 53) cf.

“ त्वया पुरस्तादुपयन्ति यः सोऽयं वृक्षः रयाम इति प्रतीतः ।

राधिमण्योनमिष गाढजानी तपस्वरागः कलिलो विभासि ॥ ५३ ॥ ”

These are valuable references which open a further field of inquiry. The name of the *akṣayavāja* at Prayaga was *śyāma* as clearly stated by poet Kalidāsa in the verse quoted above. This name has, therefore, an antiquity of more than 1500 years. The tree itself and its history as vouched by the *Mahābhārata* and by Kalidāsa is really very enchanting and it should be our endeavour to investigate it in greater details. For this purpose we must examine the comments on रयामष्ट made by the commentators of the *Raghuvamśa*. G. R. Nandargikar in his edition of

the *Rāghuvamśa*, Poona, 1897, p. 417, gives us the English Translation of the above verse (XIII, 53) as follows :—

"This is the same Banyan tree known by the name of *Śyāma*, whose help was solicited by you on some former occasion. Covered with fruits it appears like a heap of emeralds mixed with rubies."

The commentator Mallinātha (c. A. D. 1430) comments on this verse as follows :—

" त्वयेति । त्वया यः पुरस्तात्पूर्वमुपपादितः प्रापितः ॥

तथा च रामाचक्षे—

'म्यग्रोर्ध्वं तमुपस्थाप्य वेदेही वाक्यमब्रवीत् ।

नमस्तेऽस्तु महाहृष पालयेम्ये मत्तं पतिः ॥' इति

रक्षाम इति प्रसूतः स षटोऽयं कलितः सः । सपद्यरागो गच्छानां हरिन्पद्मोर्ध्वं वरकृतानां ।
पक्षिरिषि । विधाति ॥ "

The reference to रक्षाम म्यग्रोर्ध्व or षट given by Mallinātha occurs in the *Rāmāyaṇa*, *Ayodhyakāṇḍa* 2, Sarga 55, verses 23-24, which read as follows :—

" तेषु ते ह्यवमुत्सृज्य प्रस्थाप्य वमुनावात् ।

रक्षाम म्यग्रोर्ध्वमसेदुः शीतलं हरितच्छदम् ॥

न्यग्रोर्ध्वं समुपागम्य वेदेही वाक्यमब्रवीत् ।

नमस्तेऽस्तु महाहृष पारयेन्मे पतिव्रतम् ॥ "

Verses 6-7 of Sarga 55 of the *Ayodhyakāṇḍa* also refer to रक्षाम न्यग्रोर्ध्व as follows :—

" ततो म्यग्रोर्ध्वपासाय महान्तं हरितच्छदम् ।

परीतं बहुभिर्हंसैः रक्षाम सिद्धोपलेशितम् ॥

- तस्मिन्सोताञ्जलिं कृत्वा प्रमुञ्जोतामिषां श्रियाम् ।

समासाय च तं हृतं वसेद् वातिकमेत वा ॥ "

Dr. Patkar has drawn my attention to the following remarks of Dr. P. V. Kane on the *Akṣayaṇa* at Prayag in his *History of Dharmaśāstra* (Vol. IV, p. 614) :—

"There are several sub-tīrthas that fall under Prayāga. The most important of them is the famous *Ṭaṣa* (Banyan tree). The *Āgṇipurāṇa* (111.13) states "if a man dies at the foot of the *Ṭaṣa* and in the *Sangama* he goes to the city of Viṣṇu". Special reference is made to abandoning one's life at the foot of the *Ṭaṣa*. The *Kūrmapurāṇa*¹ says: 'He, who

1. Dr. Kane's footnote No. 1396 on *Kūrmapurāṇa* reads as follows :—

" षट्मूलं समाश्रित्य यस्तु प्राणान्परित्यजेत् ।

स्वर्गलोकादतिक्रम्य स्वर्लोके स गच्छति ॥ "

—कूर्म. 1, 37.8-9 quoted by टीर्थवि. The same is पद्मपुराण.

पारिजात 43.11 (reads " षट् मूलम् ")

abandons life at the foot of the *Vaṣa*, passes beyond heavenly worlds and goes to the world of Rudra."

The *Amarakoṣa* (N. S. Press, Bombay, 1905) contains the word "*Śyāma*" [p. 69—*Kaṇḍa* I, *varga* 5 (*dhivarga*)] mentioned along with words expressive of colours viz. कृष्ण, नील, अश्वि, काल, श्यामल, मेघक, पीत, गौर, हरितम्, etc. (verse 14). It does not mention श्याम in the sense of the name of प्रयागपट. Bhānuji Dikṣita (c. A.D. 1630) explains the word श्याम and quotes the lexicon श्याम as follows :—

"श्यामोऽप्युदे शितो । हरिते प्रयागपटे कोष्ठिले वृद्धराके । etc. "
इति श्यामः "

This reference to प्रयागपट by Hemacandra (c. A.D. 1088-1172) needs to be traced in the extant lexicon, the authorship of which is ascribed to him.

The *Amarakoṣa* mentions the word "*Śyāma*" again in *Kaṇḍa* III, *varga* 3 (*nānarthavarga*) p. 487. Bhānuji explains it and quotes the lexicon *Medini* (c. A.D. 1300) as follows :—

"श्यामो वटे प्रयागस्य वारिदे वृद्धराके । etc. " (इति मेदिनी)

Though Bhānuji does not mention मेदिनी in giving this quotation the editor has traced the quotation in the *Medini* lexicon. I have also traced it in the edition of *Medini* by J. Vidyāsāgara, Calcutta, 1872, p. 148, where it occurs exactly as quoted by Bhānuji.

The poet Bhavabhūti (8th cent. A.D.) also refers to श्यामपट on the banks of the river Kalindi (Yamunā) in his drama *Uttararāmacarita* as follows :— Lakṣmaṇa says to Rāma :—

"बनयतो भरदावनेदिताविषकूटयादिनि कर्त्तुमि बनस्पतिः काञ्चिन्पीठे वटः श्यामो नाम ।"

(Act I, p. 16 of P. V. Kane's edition of the *Uttararāmacarita*, 1929). The English translation of the above lines as given on p. 125 by Kane reads as follows :—

"*Lakṣmaṇa* :—Here is the banian tree, Śyāma by name on the bank of the Kalindi, by the side of the road leading to Citrakūṭa, pointed out to us by Bharadvāja."¹

1. P. V. Kane makes the following remarks on p. 26 of his *Notes* to the edition of the *Uttararāmacarita* :—

"In कञ्चिन्पीठे वटः (or वटायाम्) कर्त्तुं 54 we see that राम met भरदाज near the confluence of the Ganges and the Jamuna. वटकीणा इत्येतत् गिरिर्वसिष्ठविषयसि । 28..... चित्रकूट इति श्यालो मन्थपादनलभिः ॥" 29. In Sarga 55 we read—

वटः प्रपद्यते कर्त्तुं वचनं स महाभुवि ।

भरद्वाजो महादेवा रामं कल्पयत्ययम् ॥ २ ॥

The poet Muṛāri (c.A.D. 1050-1135) in his drama *Anargha-Raghava* (Act VII, verse 129) refers to *Ākṣayaṇ* as follows:—

“रघवो नाम वटः सोऽयम् एतस्याद्भुतकर्मणः ।
आवाक्यविस्तृत्यैः परं ज्योतिनिधिपते ॥”

In the *Gayāmahatmya* of the *Viṣṇupurāṇa* (ed. in *Ānandārama Sanskrit Series*, Poona, 1905, pp. 426-453) we get the following references to *Akṣayaṇa* :—

Page 437—“वटो वटेभूरः” near भस्मकूटादि

—“एभ्रवट” near एभ्रकूट

Page 438—“वटो वटेभूरः” near सोतादि

—“एभ्र वट” near एभ्रकूट

Page 440—“अक्षयवट” mentioned along with भस्मकूट, एभ्रकूट, वसुतोर्ष etc.

Page 447—“अक्षयराज” or “वोधिद्रुम” or “महावोषितक”

at Gayā is mentioned. The mango¹ tree was also considered sacred. Verse 37 on p. 447 refers to the mango tree and the *Śraddha* performed at its foot as follows :

“एको मुनिः कुम्भकुशाग्रहस्त
आम्रस्य मूले सलिलं दधानः ।

(v. l. आमाव सिकाः) आमाव सिकाः पितरश्च तृता
एका किया इष्यं करो प्रसिद्धा ॥ ३७ ॥”

Page 449—The following verses refer to the *Akṣayaṇa* at Gayā and the *Śraddha* performed in its vicinity.

गङ्गायमुन्मोः सन्धिमादाय मनुजर्षभ ।
कालिन्दीमनुगच्छेत्तौ नदी वधान्मुखाधिताम् ॥ ४ ॥
अपासाय तु काञ्चिन्मौ प्रसिद्धोः...समागताम् ।
...तत्र युयं ह्यं कृत्वा तरतांगुमती नदीम् ॥ ५ ॥
ततो म्ययोधवासाय महान्तं हरितच्छदम् ॥ ६ ॥
...समासाय च तं कृत्वा वसेदातिक्रमेत वा ।
कोशमात्रं ततो गत्वा नीलं प्रेक्ष्य च काननम् ।
...त पन्थाश्चित्रकूटस्य गतस्य बह्वो मया ॥ ६ ॥

Thus we see that चित्रकूट was a hill about 10 कोशS from the confluence of the Ganges and the Jamunā to the west.”

1. Dealing with the antiquity of the mango tree in India Shri H. P. Prasad quotes the following extract from the *Bṛhadaranyakopaniṣad*, Adhyāya 4. Brāhmaṇa 3) :—

“स यत्रायमणिमानः.....तयथाऽऽहं वोदुर्हरं वा विप्लवं वा बन्धनम् अनुप्यते एषमेवायं प्रुक्ताः
etc.” ॥ १६ ॥ (See p. 58 of “*कञ्चिकावर्णाचा भाग*, Poona, 1930). चाय (Mangifera), उदुर्हर and विप्लवं (iron) are referred to in this extract.

“इते धादेन्मण्डरे कान्तेनैव प्रयाततः ।
 विदुन्वेदुर्मण्डलोत्थितम् ॥ तन्नाशनम् ॥ ७६ ॥
 बटवृक्षतोषे ॥ शाकेनायुक्तेन वा ।
 एकोत्सव मोक्षिते विधे कोटिर्नष्टाति मोक्षिताः ॥ ८० ॥
 देवं शर्म बोधसर्क गयातोषपुरोधसे ।
 परत्र सन्धादिभिः पुत्रैः सम्पत्कल्प्यं कृतः ॥ ८१ ॥
 एकपुत्रे बटस्याग्रे यः क्षेते योगनिधया ।
 वासक्यपरत्सपे नमस्ते योगहायिने ॥ ८२ ॥
 क्षुण्णरूपजायासेषपायहराय न ।
 अक्षयवृक्षाय नमोऽक्षयवृक्षाय न ॥ ८३ ॥”

The reference to the Divine Child (वासक्यपर) resting on the extended branch of a Banyan tree in the midst of the ocean as found in verse 82 of the above extract from the *Gayamāhātmya* is also found in the *Aranyakaparvan* of the *Mahābhārata* as we have seen above.

Dr. A. P. Karmarker, Director, Puranic Research Institute, Belgaum, has kindly supplied to me the following references to *Akṣayavāṣa* from the *Purāṇas* :—

- (1) *Viṣṇupurāṇa*—Chap. 105, 45 —
 “तवाऽक्षयवटं गत्वा विनासतोषयिष्यति”
 —also Chap. 109, 16
 —Chap. 111, 79—82.
- (2) *Matsyapurāṇa* —Chap. 104, 10 —
 “सं बटं रक्षति सदा वृक्षपाणिर्विधिरः”
 —Chap. 106, 11 —
 “बटमूलं समासाद्य यस्तु प्राणान्विमुञ्चति ।
 तत्पक्षोऽर्चनार्थकस्य वृक्षस्यैव स गच्छति ॥”
- (3) *Padmapurāṇa* I —382-3 (गयायाहात्म्य)
 —*Ādikāṇḍa*, 43, 11 (old edition).
- (4) *Āgṇipurāṇa* —Chap. 115, 70 (वाचस्पत्येनवाहात्म्य)
 —Chap. 111, 13 (प्रयाग)
- (5) *Skandapurāṇa* —Chap. 58, 5 and Chap. 59 (गयाक्षेत्र)
- (6) *Nāradyapurāṇa* —*Uttarakāṇḍa* (प्रयागयाहात्म्य)
 —Chap. 63, 141 (बटमूल) —
 “निर्गच्छन्ति जगत्सर्वे बटमूले स दत्तते ।
 हरिश्च भगवत्सुखं स्वापतिपुत्तकः ॥”
- (7) *Brahmapurāṇa* —Chap. 161, 66—67 (under *Godavari Mahātmya*)—to the north of Vindhya.
- (8) *Brahmavaivartapurāṇa* —(on *Narmada*) III—
 Chap. 33, 32-33 (where *Pulastya* performed penance).

(9) *Karmapurāṇa* I, 37, 8-9 —

(He who abandons his life at the foot of the *Vajra*, passes beyond heavenly worlds and goes to the world of Rudra) — See also *Tīrthacintāmaṇi*, p. 48 — where the above verse from *Kārma* is repeated.

The references to the *Akṣayavajra* in Sanskrit sources recorded above reveal the history of this *Vajra* for about 2000 years. This history is further vouched by foreign travellers to India, *Prākṛta* texts and some inscriptions as I shall show in papers to be published hereafter. I now close this paper with my best thanks to all those scholar friends who have enriched my present study by supplying references to the *Akṣayavajra* known to them. I have further to request the readers of this paper to report to me whatever data pertaining to this subject come to their notice from any sources, especially of the datable type.

42. Studies in the History of Indian Plants — History of Fenugreek and Alfalfa (Lucerne) in India and other countries (between c. B.C. 700 and A.D. 1800)*

A. K. Nairne in his *Flowering Plants of Western India*, Bombay, 1894, (pp. 77-78) describes the following plants :—

(1) *Methi*—(*Trigonella Fœnugræcum*) commonly cultivated for *bajr* as it is also in South Europe. It was adopted as fodder by the Romans from the Greeks; hence the specific name.

(2) *Lucerne*—(*Medicago Sativa*) Purple medick not wild in India any more than in England, but widely cultivated. According to Hehn this plant *medicago* came originally from Media and COLUMELLA, the Spanish writer on agriculture in the reign of Emperor Claudius (A. D. 41) praises it as a horse-fodder. According to *Shorter Oxford English Dictionary* (p. 689) *Fenugreek* (*Methi*) was called as *Greek hay* by the Romans. The seeds of *Fenugreek* are used by farriers. B. Laufer in his *Sino-Iranica* (Chicago, 1919) devotes two pages (446-447) to the History of *Fenugreek* and about eleven pages (208-219) to the history of *Alfalfa*, the Arabic name of *Medicago Sativa* or *Lucerne*. I note below some points from Laufer's account of these two plants :—

Fenugreek (*Methi*) —

(1) According to Stuart (*Chinese Materia Medica*, p. 442) this plant was introduced into Southern China from some foreign country.

(2) This plant is first mentioned in the *Pen ts'ao* (A. D. 1056-1064).

(3) Abu Mansur in his Persian pharmacopoeia mentions the properties of this plant under the name *hulbat*.

(4) The Persian name of the plant viz. *Šamliz* current in Shiraz appears also in India as *Šamli*.

(5) The plant occurs wild in Kashmir, the Panjab, and in the upper Gangetic plain. It is cultivated in many parts of India.

(6) The Sanskrit term for the plant is मेथी, मेथिका or मेथिनी. It is

* *Annals* (B. O. R. Institute), Vol. XXXIII, pp. 171-181.

mentioned as a condiment in the Tale of King Vikramāditya (see p. 67 of Weber, *Abh. Berl. Akad.*, 1877).

(7) The plant is mentioned by *Theophrastus* the father of Botany in his *History of Plants* (IV, iv 10 etc) and by *Dioscorides* (II, 124) and also by *Pliny* (XXIV, 120).

(8) According to A. de Candolle (p. 112) this plant grows wild in the deserts of Mesopotamia, Persia and Asia Minor.

Lucerne (Alfalfa)—

(1) Aristophanes (B. C. 424) refers to this plant as follows in his "The Knights" (V, 606) :—

"The horses ate the Crabs of Corinth as a substitute for the *Medic*."

(2) The term "*Medike*" is derived from *Media* as stated by *Strabo* in his description of *Media*. In Greece it was the chief food for horses. According to *Pliny* "*Medica*" was first introduced from Media in consequence of the Persian wars under King Darius. *Dioscorides* mentions this plant as forage for cattle.

(3) In Italy the plant was disseminated from the middle of the 2nd cent. B.C. to the middle of the 1st cent. A.D. During this period it was also propagated in China.

(4) According to Assyriologists the Iranian name of this plant viz. *aspasti* or *aspastu* is mentioned in a Babylonian text of c. 700 B. C. Possibly this favourite fodder followed the horse at the time of its introduction from Iran into Mesopotamia.

(5) The Greeks allude solely to *Media* from which the plant was introduced into Greece and not to India. "*The cultivation of the plant is not ancient in India but is of recent date, and hardly plays any role in Indian agriculture and economy,*" says *Laufer*.

(6) In ancient Iran *alfalfa* was a highly important horse fodder. Words for this plant recorded by *Laufer* are :—

Pahlavi — *aspast*, *aspist*.

New Persian — *aspust*, *uspust*, *aspist*, *ispist*, *isfist*.

Pustu or *Afghan* — *Spastu*, *Špēsta*.

Avestan or *Old Iranian* — *aspo-asti* (from the root *ad* to eat).

Syriac — *aspesta*, *pespesta*.

(7) *Khosrau I* (A. D. 531-578) levied a heavy tax on it.

(8) *Abu Mansur* mentions *alfalfa* in his work on pharmacology.

(9) The Arabs derived the word *isfist* from the Persians and then Arabicized it as *fisfisa*.

(10) According to Chinese tradition *alfalfa* was introduced into China from Iranian quarters in 2nd century B. C.

(11) King Darius makes a proud mention of Persian horses in the Persepolis inscription. The Chinese Emperor Wu (140-87 B. C.) sent regular missions to Iranian countries with the motive of importing the Persian horses.

(12) General Can Kien imported the seeds of *alfalfa* from Fergana and presented them to the Chinese Emperor in 126 B. C. The Emperor cultivated *alfalfa* near his palaces. Later the plant was rapidly cultivated throughout northern China. This plant is mentioned by Yen Ši-Ku (A. D. 579-645), T'ao Hun-Kin (A. D. 451-536) and other Chinese writers.

(13) The Chinese General Čan K'ien noted the words *mu-su* (*alfalfa*) and *pu-tao* (*grape*) and transmitted them to China along with these plants. These words were Ferganian i. e. Iranian.

(14) The Chinese of the Han period discovered *mu-su* (*alfalfa*) in Ki-pin (*Kashmir*). In Kashmir as well as Afghanistan and Baluchistan it is probably spontaneous.

(15) *Mu-su* (*alfalfa*) gardens are mentioned by Emperor Wu (A. D. 265-290). Post-horses of the T'ang dynasty were fed on *alfalfa*.

(16) *Alfalfa* was used as an article of human food during the time of Emperor Yuan T'sun (A. D. 713-755).

(17) Chinese works of the 6th century A. D. refer to the cultivation of *mu-su* (*alfalfa*) in different parts of China.

(18) Kou T'sun-si (A. D. 1116) mentions *mu-su* (*alfalfa*) as produced in plenty and consumed both by men and cattle.

(19) The Japanese call *alfalfa* by the name "uma-goyasi" (horse-nourishing).

(20) The Tibetan dialect of Ladakh contains the word *Ol* for *alfalfa*. This word refers to the *Medicago sativa* indigenous to Kashmir or possibly introduced there from Iran.

21) Skattechkoff in his article on *Medicago* (Paris. *Revue de l'Orient*, 1864) states that seeds of this plant were for the first time sent from China to Russia in 1840. Laufer questions the suggestion that *Medicago* should not have been known in Russia prior to A. D. 1840 as there are words in the Russian language which were in use prior to A. D. 1840.

(22) The U. S. A. Department of Agriculture is trying to promote the cultivation of *alfalfa* and seeds from China have been introduced for this purpose. In Argentine *alfalfa* has been found very useful for cattle-breeding.

The foregoing notes from Laufer's scholarly history of the two plants (1) *Fenugreek* (*Methi*) and (2) *Lucerne* (*alfalfa*) are very interesting as they show these two plants in their world-perspective. As Laufer has not recorded any definite and detailed history of these plants in India I record below some notes bearing on this history which may clarify our knowledge of these plants at least to some extent :—

(1) The *Rajanighanṣu* (c. A. D. 1450) by Narahari of Kashmir mentions *Methika* and its properties as follows :—

Page 231 (*Rajanighanṣu*, Anandashram, Poona, 1896)

“मेथिका (पान्यविरोधः) ॥ १४ ॥

मेथिका दीपनी चोषा कुञ्चिका बहुपुञ्जिका ।

मलिका शतवीर्या च ज्योतिष्का वज्ररी शिखी ॥ १११ ॥

गुणाः— मेथिका कटुरूप्या च रक्पित्तप्रकोपनी ।

अरोचकहरा दीप्तिकरी वातप्रणाशिनी ॥ ११२ ॥”

(This *मेथिका* seems to be identical with *Fenugreek* used as vegetable and seeds in Indian diet).

“मेथिका (मेथिकाविरोधः) ॥ १५ ॥

मेथिका वास्तिका सेलुरहित्यो वनमेथिका ।

अहित्योऽल्पगुणस्तस्या बाजिना सस्तु पुञ्जितः ॥ ११३ ॥”

This variety of *मेथिका* mentioned as “ वनमेथिका ” (growing wild) seems to be identical with *Lucerne* (*alfalfa*). The name *अहित्य* confirms this identification, *अहित्य* was a *horse-fodder* (बाजिना सस्तु पुञ्जितः) says Narahari of Kashmir. Evidently in Kashmir Narahari found *अहित्य* growing wild in his time about A. D. 1450. It appears *Lucerne* was growing in Kashmir in the time of Dallana of Kashmir i.e. about A. D. 1200¹ or even earlier. A plant of the name *अश्वबला*² (*asvabala*) is mentioned in the *Suśruta Saṁhitā* (pp. 406 and 232-233 of N. S. P. Edition, Bombay, 1938). Dallana explains this term *अश्वबला* by stating that *अश्वबला* is a variety

1. Vide p. 132 of *Indian Historical Quarterly*, June 1947—D. C. Bhattacharya's article on “New Light on Vaidyaka Literature”—“Dallana's date is about 1200 A. D., being cited by Hemadri and himself citing Halayudha”.

2. Vide my papers on *Asvabala* in *Bhāratīya Vidyā* (Bombay), July 1946 (pp. 67-30) and in the *Journal of the Oriental Institute* (Baroda) Vol. 1, pp. 39-43.

of मेधिका with large leaves (हृत्पत्रा मेधिकामेधः) called हिल्फित्य in the सुगन्ध country. He quotes an earlier commentator ब्रह्मदेव, who states that अश्वपला is 'मेधिकाकारपीका' in the 'यवनभूमि' (country of Yavanas). The commentator ब्रह्मदेव seems to be earlier than A. D. 1000.

Both Brahmadeva and Dallana connect the अश्वपला plant with a foreign country (सुगन्धदेश, यवनभूमि) which I have identified with Persia as the term हिल्फित्य mentioned by Dallana is identical with *Aspist* (asp=horse+pist=meals) meaning Lucerne grass i. e. *alfalfa*. The following table shows the chronology of the references to मेधिका recorded above :—

Before A. D. 500	Before A. D. 1000	c. A. D. 1200	c. A. D. 1450
अश्वपला mentioned by सुभुत	मेधिका mentioned by ब्रह्मदेव	हृत्पत्रा मेधिकामेधः — हिल्फित्य in सुगन्धदेश according to ब्रह्मदेव	यवनमेधिका — अहिल्यः liked by horses according to नरहरि

I feel no doubt that हिल्फित्य of the Kashmirian author *Dallana* (c. A. D. 1200) is identical with अहिल्य of another Kashmirian *Narahari* (c. A. D. 1450). It would thus appear that *alfalfa* was grown in Kashmir between c. A. D. 1200 and A. D. 1450 as horsefodder.

(2) I am inclined to believe that the plant अश्वपला mentioned by *Sufruta* is likely to be identical with *alfalfa* or Lucerne grass described by *Dallana* as हिल्फित्य of the सुगन्ध country i. e. Persia for the following reasons :—

(i) The term अश्वपला is significant and means a plant that strengthens the horses (अश्व horse + पला strength). It is possible to suppose that this word is a paraphrase of the *Pahlavi* term "*aspist*" or the *New Persian* "*aspist*" which *Laufer* has recorded as terms meaning *alfalfa* (Lucerne).

(ii) *Laufer* states that the Iranian name of *alfalfa* viz. *aspastu* or *aspastu* is mentioned in a Babylonian text of about 700 B. C. and possibly this fodder followed the horse at the time of its introduction into Mesopotamia.

(iii) The Chinese Emperor *Wu-ti* (140-47 B. C.) imported *alfalfa* for an imported breed of horses and planted it in his famous imperial gardens. He also imported grapevines, oranges, *areca* and *litchi* nuts for his garden.¹

1. Vide p. 30 of *Short History of Chinese People* by L. Carrington Goodrich, New York. 1951.

(iv) Laufer states that the Chinese of the Han period (B. C. 202-A. D. 220) discovered *alfalfa* in Ki-pin (Kashmir). If this statement is correct we can justify Kashmirian Dallana's explanation that the plant **अश्वत्था** mentioned by Suśruta (before A. D. 500) is identical with **हिसिक** or *alfalfa*.

(v) As *alfalfa* migrated to Mesopotamia sometime before B. C. 700 and to China in the reign of Wu-ti (140-47 B. C.) along with the import of Persian horses to these countries we are warranted in supposing that *alfalfa* may have migrated to India along with Persian horses even prior to the Han period (B. C. 202—A. D. 220).

(vi) In my paper on *Persian Horses in Indian Literature* (Poona Orientalist, Vol. XI, Parts 1 and 2 (1946) pp. 1-17) I have proved that Persian horses were imported to India between A. D. 500 and 1800. They are mentioned as *Parasika* or Persian horses.

(vii) In the Mauryan times *Bāhika* horses were part of Indian Cavalry (Vide Chapter 47 - **अश्वपक्ष** of Kauṭilya's *Arthaśāstra*, Eng. Trans. by R. Shama Sastri, Mysore, 1919, p. 133). The *Mahābhārata* (VIII, 7, 11) also mentions **बाहिक** horses (vide p. 263 of **महाभारत**, Calcutta, Vol. IV). H. G. Rawlinson states on p. 18 of his *Bactria* (Bombay, 1909) that the *Bactrians* were known as *Bāhikas* according to Hindu accounts. He further states that Bactria was famous for its horses in ancient times (p. 2) and that it was the heart of Iran lying on the great trade route to India. The "Medic herb" (Lucerne) grew all over Iran and made admirable fodder for these horses. In view of this information it is possible to suppose that Bactrian horses must have been imported to India say between B. C. 500 and A. D. 500 and that *alfalfa*, on which they were fed in Bactria the heart of ancient Iran lying between the slopes of Hindu-Kush and the river Oxus, also followed these horses to India during this period.

(3) According to Laufer *alfalfa* (Lucerne) was used as human food during the time of Emperor Yuan Tsun (A. D. 713-755). It was also consumed both by men and cattle in China according to Kou-Tsun-si (A. D. 1116). The *Suśrutasaṃhitā* mentions **अश्वत्था** (**शाक**) as an edible vegetable and if Dallana's equation "**अश्वत्था** = **हिसिक** = *alfalfa*" is correct we have reason to believe that *alfalfa* may have been used as food both by men and horses as in China in the time of *Suśruta*. The Marathi translation of the *Suśruta Samhitā* by Kṛṣṇāśtri Phadke, Bombay, 1921, Vol. I, pp. 450-451, translates the term **अश्वत्था** by the term **मेयो** or **मेयोचो भाजो** i. e. *Fenugreek* which we eat with relish at present.

(4) Seeds of **मेयो** (*Fenugreek*) are used in Indian cookery today either whole or in a powdered form. In the *Manasollāsa* (Vol. II, Baroda, 1939)

composed about A. D. 1130 by King Somēvara the use of the powder of मेयिका seeds (*Fenugreek seeds*) is mentioned in the following extracts from the chapter on Food (अन्नभोग) :—

Page 124 — “मेयिकाचूर्णं तत्र बान्धवस्य च पूतिकाम् ।

विभिक्षोपायैस्तदो पूते बान्धव तापयेत् ॥५८॥”

Page 125 — “जीरकस्य च चूर्णेन मेय(वा)कस्य च मिथयेत् ॥५९॥”

Page 132 — “एता रामदोषारमेयिका ११६६ तथा ।”

I am not aware of the seeds of *alfalfa* being used in Indian cookery today. The term मेयिका or मेयिका used in the above extracts means *Fenugreek* and not the large-leaf मेयिका (बृहत्पत्रा मेयिकाभिः) or *alfalfa* mentioned by Dallapa (c. A. D. 1200), who apparently knew *Fenugreek* or मेयिका with small leaves.

(5) *Fenugreek* was used in the royal kitchen of Emperor Akbar. Its price mentioned in the *Ain-i-Akbari* (c. A. D. 1590) [English translation by Francis Gladwin, Calcutta, 1897, page 57] is 10 Dams per Maund.

(6) In the *Bhāvaprakāśa* of Bhāvamīśra (c. A. D. 1550) मेयिका of two varieties is mentioned in the following stanza :—

“मेयिका वातघ्नानी श्लेष्मघ्नी ज्वरनाशनी ।

वृषभाशुण्या बन्धा बाजिनां सा तु पूजिता ॥”

(This verse is quoted on p. 318 of *Nigharṣu Ādarsa* by Bapalal G. Shah, Part I, 1927).

(The verse refers to मेयिका viz. *Fenugreek* and its बन्धा (wild) variety used as horse fodder (*alfalfa*).

(7) In the *Kṣemakūṭhala* of Kṣemasarmā (c. A. D. 1550) we get the following stanzas describing the properties of मेयीशाक or मेयिका (*Fenugreek*) :—

“ मेयीशाकं पयसि पिष्टं स्वेदितं पोषितं हि ।

प्राज्ये स्वाज्ये जरणसहिते मेलितं भक्षितं हि ।

कासोन्मुखासं वृद्धमपि कृषितो जाठराग्निः

बैनं प्राणं सुबुधुणितं भरं भूयोऽपि भूयः ॥

मेयिका दीपनी इया बद्धिर् इमिशुकर्तुः ।

रुग्णोऽपि तत्तत् कालानिलकेऽन्मृदोऽपि ॥ ”¹

1. On p. 195 of his edition of *Aṣṭāṅgasamgraha* (Sūtrasthāna), Poona, 1940; Pandit Ramachandraśastry Kinjavadekar has quoted the following additional stanzas about मेयिका from the *Keṇuśūtra* :—

“ स्ववासवासिता चार्हं शतपुण्या यदोरितम् ।

किं कृपा क्रियते भृत्या स्वेनेन स्वोपभोगिका ॥

महासेनेन सफलं भोषनागारसङ्गणम् ।

वासितं मेयिकमप्ये किं स्ववासमुपासिता ॥ ”

— (See p. 318 of *Nighanṭu Adarsa*, Part I,
by Bapalal G. Vaidya).

(8) In the *Aśvavikitsita* of Nakula (Before A. D. 1000) (Calcutta, 1886, p. 51) मेथिका is prescribed for the *piṇḍa* to be given to horses as tonic food :—

“ मेथिका धानको, काली लारणां बोजपूरकः ।
पियको दत्तो वराधानां तेजोवृद्धिकः स्मृतः ॥ ७ ॥ ”

(पितृडाप्याय, Chap. 13)

(9) In the *Aśvavaidyaka* of Jayadatta (later than 9th century A. D.) (Calcutta, 1886, p. 334) मेथिका is also prescribed for the *piṇḍa* to be given to horses :—

“ लोषर्चलं तथा द्विगु पुष्करं विडदादिमम् ।
प्रथिकं मेथिकारचेषां भिषक् पियं च कारयेत् ॥ ८ ॥ ”

(रसायनकल्प, Chap. 68)

At this stage of my inquiry about the history of *Fenugreek* and *Alfalfa* in India I have to raise the following questions for the consideration of scholars interested in this problem :—

(1) What is the etymology of the word मेथिका which appears in Sanskrit works sometime after about A. D. 700 ? Can we equate मेथिका (*Methikā*) with *Medica* ?

(2) If the word मेथिका is Sanskrit can we trace its usages in Sanskrit sources prior to c. A. D. 700 ?

(3) If *alfalfa* (*Lucerne*) was introduced into India along with *Bactrian* (बाह्लीक) or *Persian* (पारसीक) horses sometime after B. C. 500, is it possible to suppose that the word मेथिका (*Fenugreek*) came to be transferred to *alfalfa* on account of the resemblance of *Fenugreek* with *alfalfa* ?

(4) Is there any evidence in Sanskrit sources to prove that *Fenugreek* is a native of India ? If it is a native of India what was its name prior to the use of the word मेथिका in Sanskrit sources ?

(5) *Fenugreek* is mentioned by *Theophrastus* (died B. C. 287), the Greek philosopher, by *Pliny* and by *Dioscorides*. If it was adopted by the Romans from the Greeks is it possible to suppose that it was introduced into Greece prior to the time of *Theophrastus* like *Medica* (*alfalfa*) introduced into Greece from *Media* in consequence of the Persian wars under King *Darius I* (B. C. 521—485) ?

(6) If *Fenugreek* grows wild in *Mesopotamia*, *Persia*, *Asia-Minor* as stated by *A. de Candolle* is it possible to suppose that *Fenugreek* was

introduced into India from Persia at some stage of the Indo-Persian contact ?

(7) *Fenugreek* occurs wild in Kashmir, the Panjab and in the upper Gangetic plain. Many imported plants with definite history of their importation like that of *cactus* have been found growing wild in some parts of India. The mere fact of a plant growing wild in any locality is no proof of its being a native of that locality.

I shall feel thankful if readers of this article can throw more light on the history of *Fenugreek* and *alfalfa* in India than what I have been able to throw so far. Any references to these plants especially prior to c. A. D. 700 are welcome.¹

1. I am thankful to my friend Shri K. N. Dave of Nagpur for his remarks on *अथकला* communicated to me on 12-11-51 :—

"S. S. Pade equates *अथकला* with *मेथिका* (*Fenugreek*) in his *वनौषधिवृत्तार्णव*. The *भाष्यकारानन्द* (Chowkhamba Edition, p. 32) has the following verse :—

“मेथिका वातघ्नानी श्लेष्मणी ज्वरनाशिनी ।

ततः श्वस्पर्शुषा बन्धा वाग्निनां सा तु पूजिता ।”

The *अथकलाशिखर* with *अथकला* (Anandathram, Poona, p. 231) has a corrupt reading of “*वाग्निनां सा तु पूजिता*,” but it helps you by mentioning the synonym *उल्लिख* (उल्लिखः) as a synonym for the second variety of *मेथिका* or *Fenugreek*. Turning to *Fenugreek* in Webster we find that it is used as medicine in veterinary Science. Evidently this wild species of *मेथिका* was given as tonic-food to horses in India but was regarded as inferior to the cultivated *मेथिका* for purposes of human treatment and also as culinary condiment.”

43. Studies in the History of Indian Plants — Aśvabalā or Hisphittha explained by Daṇḍana as a variety of Methikā in the 12th Century A.D.*

In Apte's *Sanskrit-English Dictionary* *asvabala* is mentioned as the "Name of a vegetable" but no usage of this word has been recorded. This word occurs in the *Sūtrāsāmhita* (Sūtrasthāna Chap. 46)¹ in the section on vegetables (शाकपत्र) as follows :—

"तण्डुलौयक-उपोदिका-अश्वबला-पालङ्ग्या-वास्तूक-अभृतीनि ॥ २५६ ॥" and
"शाकमाश्वबलं कश्चं वदन्ति यत्र मातलम् ॥ २६६ ॥"

The commentator Daṇḍana (c. 12th Century A.D.) in explaining the above text from *Sūtrā* records vernacular equivalents² for these vegetables current in his time. These equivalents are very important as they are no less than 800 years old. Some of them may be even now current in different provinces of India. In fact they are the only links which might help us to connect the modern names of several plants and

* *Bharatya Vidyā*, Vol. VII, Nos. 7-8, pp. 67-80.

1. Vide pp. 232-233 of *Sūtrāsāmhita* with Daṇḍana's Commentary and Gayadāsa's Commentary edited by Vaidya Jādevajī Trikamjī Acharya, N. S. Press, Bombay 1938.

2. It would be useful both for linguistic and medical studies to collect all vernacular equivalents recorded by the earliest commentators on the *Carakasāmhita*, *Sūtrāsāmhita*, *Aṣṭāṅgahārā*, *Aṣṭāṅgahārdaya* and other medical texts (prior to A. D. 1000). *अष्टांग* records many such equivalents and introduces them by the words "वृत्ति लोके" I record below some of these equivalents from his commentary on शाकपत्र :—

आलिवं = कलिवं	जोषन्तो = डोडिका	गोश्या = गोशोभो
अलुपं = लेवसा	अनन्ता = कलहारो	अल्लयुजः = बाकुली
कृष्णः = खरवारु	पञ्जरी = वाड	पुन्ताकः = बंदगण
गुरसा = ठलसो	शेठः = लिसाड	कोषालको = तोर
श्वकः = छिकणो	कत्तादनी = कत्तबतिया	माडिका = नालो
खपुपः = खोदयिका	तण्डुलौयकः = तुलाइ	वाहरो = अल्लवाहरो
कणिकम्फः = काणिक	अश्वबला = हिस्किप	कुडिन्नरः = कोलमुषा
उपुषिका = एहजोरक	पालङ्ग्या = पालक	तामूलपत्रं = पण्डम्
आर्जो मुस्तुम्बरो = अल्ल	वास्तूकः = टड्डुचुचू	अपस्तः = अगधोरा
(Marathi कोशिकी)	मुनिपरायकः = सिरिवासिका	मुक्क = मोरफ

उन्डः = पुड

other articles with their ancient names occurring in the earliest medical texts like the *Carakasamhita*, the *Suśrutasaṃhita* and others. A systematic glossary of these equivalents is essential for any historical study of Indian plants worth the name. The history of Indian plant-lore means the history of the nomenclature of Indian plants through successive centuries from the first mention of each name of these plants in records that have come down to us from the remotest antiquity.

In the present paper I am concerned with the explanation of the term **अश्वत्थ** given by Dallaṇa in the 12th Century. *Suśruta* mentions **अश्वत्थ** as a kind of **शाक** or vegetable and Dallaṇa explains it as follows in his commentary :—

“अश्वत्थो बृहस्पतिर्वाग्देव एव हिस्तिव्य इति लोके, तन्मान्तरे मेथिका हिस्तिव्ययोः
पृथगुच्यतेऽतः कृतः—

“भातपितृरा सिका लम्बी रसेव्यविरोधिनी ।

मेथिका तत्तमं हिप्तिव्यं पुष्टिं गुह ॥”

—इति”

We are told by Dallaṇa that in the country of *Turuṣkas* **अश्वत्थ** is equivalent to a kind of **मेथिका** with large leaves commonly called “हिस्तिव्य”. In another text, however, **मेथिका** and **हिस्तिव्य** are distinguished as having different qualities. Dallaṇa then quotes the Sanskrit verse “भातपितृरा...गुह” in which we are told that **मेथिका** and **हिस्तिव्य** are similar to each other, though they differ in qualities. Dallaṇa does not name the Sanskrit text from which he quotes the above verse. It is, however, clear that this Sanskrit text is earlier than Dallaṇa i.e. earlier than c. A. D. 1100. According to Dallaṇa **अश्वत्थ**=**मेथिका** (मेद)=**हिस्तिव्य**. Evidently the term “हिस्तिव्य” is non-Sanskrit and belongs to the country of *Turuṣkas* (बृहस्पतिदेश) as stated by Dallaṇa. In early Sanskrit texts the term **तुरुष्क** is indiscriminately used to indicate foreigners, like Persians, Turks, Arabs, etc. In the present case the exact identification of **तुरुष्कदेश** mentioned by Dallaṇa depends on the identification of the language to which the term **हिस्तिव्य** belongs. In this connection I may note here that Dallaṇa shows acquaintance with the usages of words current in different provinces of India¹ and even outside. Generally a commentator may be regarded as trustworthy

1. In his commentary on chap. 46 of *Sūtrabhāṣya* of *Suśruta* he mentions the following countries and places :—

P. 214—अन्तर्देशाय, पाषाणे, उत्तरकुशे, अश्वत्थान्तरा, मगधदेशे, दाक्षिणात्याः, देशाख्ये.

P. 219—हिमवदादिपर्वतेषु (कस्तुरीयम्), कारमोरे, कातिकपुरे.

P. 222—वैश्वे,

P. 226—मन्देश, उत्तरास्य, मगधेषु, कातिकपुरे, कामरुपे.

in his record of vernacular equivalents current in his province but when he mentions the equivalents as current in other provinces we have to get them verified and corroborated by other contemporary evidence. This position with regard to the value of these equivalents was recognized by a Bengali commentator of *Caraka* viz. Cakrapāṇidatta as early as c. A. D. 1060. He observes in his commentary on the *शुक्रसाम्यवर्ण* (Chap. 27 of *Sūtrasthāna* of *Carakasamhitā*, N. S. Press, 1941, p. 153) as follows :—

“इह च द्रव्यनामानि नानादेशप्रसिद्धानि, तेन नामशाने सामर्थ्यं तदाभूतं नास्त्येव
हृन्नेयामि टोकाकृतां, तेन देशान्तरेभ्यः नाम प्रायशो ज्ञेयं, यत्तु प्रचरति गौडि तन्नोत्पत्त्या
हृन्नेयमर्थं च किञ्चित् ।”

In his inability to know correctly the nomenclature of the several items of Indian *MATERIA MEDICA*, says Cakrapāṇidatta, he is in line with other commentators, as this nomenclature must be gathered from the different provinces where it is current. He has, therefore, recorded in his commentary whatever names were current in the *Gauda* country, together with a few names current in other provinces.¹ Another early commentator Indu,² who is earlier than c. A. D. 1000, makes the following

- P. 227 — कारमोर (बाम्लिका), पूर्वदेशे, उत्तरापथे,
P. 228 — पारसीकेषु देशेषु (पिएडसर्ज), उत्तरापथे, (बाताम),
P. 230 — उत्तरापथे,
P. 232 — नृषण्देशे (हिस्फित्य),
P. 235 — कच्छविषये (पिएयाकी शाक),
P. 236 — शाकम्भरोदेशे (लषण),
P. 245 — केदारगिरी.

1. I note here the equivalents recorded by Cakrapāṇidatta in this commentary on chap. 27 of the *Sūtrasthāna* of *Carakasamhitā* :—

धाम्यवर्ण	बुलकी = शुशु	सुबर्ला = कपुष्प
धम्मः रयामाक = जलना घोडिका called “डे”	कोशः = कोश	नोलिनी = बुडा
भियङ्गः = काइनो	शारिः = शराली	नदोमापक = उदोमानक
जुण्डाः = जोनार (= जोपडा)	उल्कोरा = कुरल	फज्जर्वा
मकुटक = मोठ	वर्तकः = कट्टी	भाभातम = भावदा
मोसवर्ण	मोनर्द = पोडाकड	शताक = सेह
तरपुः = तरपुल	कोयटिः = कोटा	अनुपाकि = अनुया
वाधः = धनक वायस (or काननचटक)	कुलिङ्गः = बाए	गोरसवर्ण
शराप्पी = पात्रि	शाकवर्ण	फिलार = शीरता
	कालशाक = कालिया	कुलावर्ण
	मणहकपणी = मणियणि	एल्लिक = चापडिका

2. Vide my article on “The Chronological Limits for the commentary of Indu on the *Aṣṭāṅgasaṅgraha* of Vagbhata I — Between A. D. 750 and 1050” in *Annals* (B. O. R. Institute) Vol. XXV, pt. 217-230 (1945).

observations regarding the importance of vernacular equivalents for terms mentioned in the *Aṣṭāṅgasamgraha* of Vāgbhata I :—

P. 57 – “प्रायो प्रत्यमेतेषां मये केचिन्नेवस्वरूपा इति ज्ञापनार्थम् ।

तेषां च पर्याया निषण्णज्ञानात् देशभाषासंस्करणः किञ्चित् ज्ञायते.”

P. 61 – “अथ शाकानां इति कानां च येषां नामानि नोक्तानि तेषां देशभाषाभिर्बहुभ्यः
अभिगम्य अपभ्रंशसंस्कारान् उपयोगिविशेषात् च शतव्यानि.”

P. 66 – “अथापि कृषानामपशिदानां च येषां नामानि नोक्तानि तानि
नानादेशकुलेभ्यो अपभ्रंशसंस्कारादिना अभिगमन्त्यानि.”

The above observations of Indu make it amply clear that in his time the necessity of understanding the exact meaning of terms used in the *Aṣṭāṅgasamgraha* was keenly felt. To get over this necessity Indu suggests the following means :—

- (1) निषण्णज्ञान or Knowledge about certain terms acquired by the use of *Nighaṭṭus* or glossaries then available.
- (2) देशभाषासंस्करण or अपभ्रंशसंस्कार-Collecting words current in dialects from those who are well-versed in them (देशभाषाभिर्बहुभ्यः) or from different families or communities (नानादेशकुलेभ्यः) and then tracing through them the Sanskrit equivalents.
- (3) उपयोगिविशेष-In the case of the names of vegetables the identification of their names given in a medical text is facilitated if we study the current specific uses of these vegetables associated with their dialect names and then compare these uses with those associated with their Sanskrit names mentioned in such a text.

1. Edited by V. R. Kiojavadekar, Poona, 1940 — *Saṁgrahana of Aṣṭāṅgasamgraha*.

2. Even in a veterinary treatise we find a *Nighaṭṭu* recorded e.g. in the *उपनिषद्* of *व्यास* (Bib. Indica, Calcutta, 1886) Chapter XII is *उपनिषद्* (77 verses) dealing with the *materna medica* in the treatment of horses. This chapter begins :—

“निषण्णं संवत्समि पूर्वशास्त्रानुसारतः । द्रव्याणामवशेषतु येन सप्तवक्त्रजायते ॥१॥”

Knowledge of *materna medica* (द्रव्याणामवशेषतु) can be obtained from a *Nighaṭṭu*, says Jayadatta. Hence *Nighaṭṭu* was recognized as a necessary preliminary to all therapeutic measures in dealing with the diseases of men and animals. *व्यास* concludes his chapter on *Nighaṭṭu* with the following verse :—

“वाह्यारिक्त-गोपालमालाकारवनेचरान् । दृष्ट्वा नामानि जानीयात् भेजानां विचक्षणः ॥७७॥”

Names of herbs can be learnt from *वाह्यारिक्त*, *गोपाल*, *मालाकार* and *वनेचर* classes of people (who are in contact with forest produce).

A physician who studies a medical text should not rest satisfied by merely noting a vernacular equivalent of a Sanskrit term. He must make sure that the uses of an article associated with its Sanskrit name must tally with those associated with its vernacular name. The problem of the correct identification of several items in the ancient Indian *Materia Medica* appears to have been a problem to the physicians of Indu's time as it is to the physicians of today. Fortunately the modern Ayurvedic physician is now in a better position than his confreres who lived more than a thousand years ago. We can now test the properties of things clinically and chemically and thus verify the statements of ancient medical texts and see how far they are correct. If ancient observations about the properties of certain products are corroborated by chemical and clinical tests the popular belief in the efficacy of these products will be strengthened and *Ayurveda* will get a new lease of life. We should, therefore, examine all ancient observations and explore their practical possibilities for the well-being of humanity with the aid of modern scientific research.

My object in recording in the foregoing lines the remarks of Indu (between 700 and 1050 A. D.), Cakrapāṇidatta (c. A. D. 1060) and Dallāna (c. A. D. 1100) on the question of the identification of several items of *materia medica* is not merely historical but practical as well. The history of plant sciences is closely connected with the history of *materia medica* and unless the articles mentioned in ancient Indian medical texts are correctly identified we can never hope to get the fullest benefit of the experience of the ancient medical practitioners as recorded in these texts. In studying the history of Indian *materia medica* it is essential for us to know the *materia medica* of other nations, that were in contact with India in historic and even pre-historic times. Foreign words occurring in early medical texts have, therefore, a peculiar significance. The term हिस्फित्थ mentioned by Dallāna (12th Century A. D.) as current in सुसुक्रदेश to indicate the meaning of the term अश्वबला used by Suśruta is, therefore, very important. We have already seen that Dallāna regards अश्वबला as a variety of मेथिका but with large leaves (बृहत्पत्रा) and then records its current foreign name हिस्फित्थ. In this connection I made an inquiry of my ever-obliging friend Khan Bahadur Prof. A. K. Shaikh and I have great pleasure in recording below his reply to my inquiry, dated 12th August 1945 :—

"Your favour of 7th August regarding हिस्फित्थ. I have already written to you that the word हिस्फित्थ is neither Arabic, nor Turkish, but it is a Persian word.

हिसिक्त्य is a Sanskritized form of the Persian इस्फिस्त or अस्फिस्त (which is sometimes shortened to लपित) and which is explained in Dr. Steingass' well-known *Persian-English Dictionary* as meaning "Trefoil" or "Clover."

"Isplast" or "Asplast" is called in Arabic "*Fasfāsāt*" or "*Fasfasāt*" and in Turkish "*Yunja*" or "*Yuncha*." The latter is a well-known fattening fodder for horses, which in my opinion is no other than whar we call here लघुगुपास i.e. "*Lucerne grass*", which is so freely given to horses in India, Persia and Turkey for fattening them and making them strong (cf. अश्वचला).

There are several varieties of this grass or plant and मेथी is one of them. सुधुत is right and बल्लण is also right.

Another name used for "*Lucerne*" in English is "*alfalfa*," which has directly descended from the Arabic "*Fasfāsāt*", which itself is derived from the Persian "*Asplast*." This is what I find in the books that I have in my library. In none of these books I find any attempt made to explain the word etymologically. I am not a philologist; but what strikes me at present is that the word "*Asplast*" is a compound word made up of "*Asp*" which means "*horse*" (cf. अश्व=अश्व horse) and "*pist*" which means "*meals*" (cf. Sanskrit पित् ; Marāṭhi पीठ).

I believe this short note on हिसिक्त्य will give you what you want for the present."

I have to record here my best thanks to Khan Bahadur Prof. Shaikh for the above learned note on हिसिक्त्य which clarifies and corroborates Dallāna's reference. I have now to request other Persian scholars to throw more light on this word by recording usages of the Persian word इस्फिस्त or अस्फिस्त in Persian sources earlier than Dallāna i. e. earlier than A. D. 1100. I have also to request Sanskrit scholars to point out to me any mention of the Persian term "हिसिक्त्य" in any Sanskrit sources prior to A. D. 1100 or posterior to it. We must also identify the 'तन्त्रान्तर' from which Dallāna quotes the verse viz.—

"वातपित्तहरा तिका लक्ष्मी रतेष्पशितोषिणो ।
मेथिका तत्तत्तं किञ्चिद्विचित्रं पृष्टिदं गुह ॥"

Evidently the term हिसिक्त्य was known to Sanskrit medical writers earlier than Dallāna's time i. e. earlier than c. A. D. 1100.

In his *Patna-Gaya Report* (1811-1812) Francis Buchanan devotes a section (VIII-pages 529-530) to "*Plants cultivated for feeding cattle*." In this section he mentions two kinds of मेथिका viz. *Ban methi* (बनमेथी) and *Ban metha* [बन मेथ (या ?)] in the following extract :—

"There are several plants which grow as weeds among the winter crops that might be cultivated with great advantage as artificial grasses.

They would require two or three waterings in the season but I have no doubt would bear that expense. These, which I observed were as follows :—

Medicago Cordata vel *lappacca* of the Encyclopèdie called here Bokehi.

Medicago lupulina called here Osna and Amrora.

Trigonella monspeliaca called here Banbuti.

Trifolium indicum called here *Ban Methi*.

A *Trifolium* allied to the above but not yet described called
BANMETHA

Vicia Sativa, called Bara Akta.

An *Ervum* very like *Hirsutum*, but it is not hairy. It is called
Chhota Akta and Misia."

Buchanan also refers to *Lucern* as distinct from *Ban methi* or
Banmethi :—

"*Lucern* I found sold in the markets of Patna, where it is called *Maruyan*, but I am told that it was brought from the gardens of Europeans, where it has become wild among the herbage that is watered for the sake of verdure, and cut in order to look neat. The workmen sell the cuttings to great advantage."

Buchanan was not only interested in plants of economic value but also in plants of medical value. His remarks on the value of Indian drugs are, therefore, important for any study of the history of European interest in Indian drugs. These remarks are as follows :—

"*Patna-Gaya Report* (Pub. by Bihar and Orissa Research Society)
pages 450—451—

"I have made very considerable progress in ascertaining the plants of this country that are used in medicine, but as the number is exceedingly great, and as all I can say on the subject must be confined to disquisitions strictly scientific, and totally uninteresting and unintelligible except to the physician and botanist. I shall not here detail any of the information I have procured. I can, however, recommend the subject as highly deserving the attention of government as well as of men of science. From the state in which European practitioners of medicine are here placed no very great discoveries can be expected, although some useful practices of the native physicians, by mere chance, as it were, have been brought into notice. It appears to me, however, probable that among a farrago of useless drugs, they possess several of very considerable powers and that in many cases they apply them with skill. I am further persuaded that with

a very little assistance from Government¹ these useful practices might soon be brought to light, which never, I suspect will be done by translating their books, owing to the terrible confusion and uncertainty that prevails both in their pharmaceutical and nosological nomenclature. What is wanted is a native physician to prescribe and a European to give an account of the symptoms of the diseases and of the effects of the practice. Such substances as have been actually employed, where the practice seems to have been successful, are then to be carefully ascertained. If they are the produce of the vicinity, this may be done by sending them to the botanical garden for investigation or if they have come from a distance, by accurately describing them and endeavouring to trace them to the country, where they have been produced, a labour which ought, of course, to fall entirely on the superintendent of the Botanical Garden.²

1. Dr. Girindranath Mukhopadhyaya in his *Introduction to History of Indian Medicine*, Vol II, 1926, p. 13 ff, has described the work done by Government to resuscitate knowledge in Ayurveda from A. D. 1807 onwards.

2. In A. D. 1837 Royal Botanic Gardens were founded at Calcutta through the exertions of Lt. Col. Robert Kyd, Secretary to the Military Board. Kyd was also its First Superintendent (Vide p. 435 of *Cultural Heritage of India*, Dr. G. P. Majumdar's paper on *Botany in India—Past and Present*). I may note here the Chronology of Government efforts to revive Ayurveda :—

- A. D. 1811 — Lord Minto recommended the establishment of Colleges at Nadia and Tribhuv.
- A. D. 1813 — East India Act authorized the Governor-General to set apart more than a lac of rupees for the revival and improvement of Sanskrit literature and the promotion of knowledge of European Sciences in India.
- A. D. 1824 — Sanskrit College, opened at Calcutta on 1st January, 1824 — Calcutta Madrasa was founded in A. D. 1781 and Hindu College was founded in 1817. — Medical Science, European and Indian, was taught in the Sanskrit College.
- A. D. 1826 — Dr. Tytler began his lectures on European Medicine and Professors were appointed to teach *Caraka*, *Susruta*, *Bhava Praksna* etc.
- A. D. 1827 — Classes opened for Ayurvedic Students—Madhusudan Gupta, a student of these classes becomes Professor of Medicine—Professor Wilson was satisfied at the progress of these classes (Vide p. 994 of *Affairs of the East India Company*, 1832).
- A. D. 1831 — Dr. J. Grant began his lectures on Anatomy, Physiology, Diagnosis and Surgery.
- A. D. 1833 — Lord William Bentinck appointed a Committee for the revision of the question of medical education in Bengal.
- A. D. 1834 — The General Committee working under Rev. Dr. Grant decided to introduce English as medium of instruction and abolished the medical classes in the Sanskrit College and Madrasa. Dr. Tytler was against this abolition.

I should, therefore, propose that a skilful native physician should be employed under the *Superintending Surgeon of the Presidency*, who in the different native hospitals under his inspection should point out patients proper for the physician's management, and who should direct the surgeons, under whose care the patients may be, to take careful account of all the proceedings of the native physician and of the symptoms of the diseases that he treated, which accounts, together with specimens of the drugs employed should be transmitted to the medical board, and this should make an annual report on what had been observed, and publish for general benefit any useful discoveries that may be made. The expense of a salary to the native physician, and of the drugs, with perhaps a clerk to make a fair copy of the cases, seem to me all that could reasonably be charged, and should not exceed 100 R. a month.

There are indeed three chief sects of native physicians, the *Yunani* (Ionians), among the Muhammedans, the *Sakadwipi Brahmans* in Bihar, and the *Baidyas* in Bengal. Even if one of each of these was employed, which might be satisfactory, each treating different patients in his own manner, the expense would be altogether trifling. More effectual means might no doubt be proposed for bringing to light the medical science of the natives but they would be attended with some considerable expense as a young surgeon, who should dedicate his time to the study of the languages and science of the natives must relinquish his other views and would require a considerable allowance."

In spite of this early European interest in Indian Medical drugs and Indian Medicine about A. D. 1807, and the subsequent efforts to revive Āyurvedic studies through the Sanskrit College and Madrasa of Calcutta after 1824, the study of Āyurveda under Government patronage came to an end in 1835, when Government ordered the abolition of Native Medical Education and the Medical classes at the above institutions.

A. D. 1835 — Famous minute of Lord Macaulay (2nd February, 1835), introduced English as medium of instruction.— On 20th February 1835 the Medical College of Bengal was founded with Dr. Bramleyas Superintendent.— On 28th January, 1835 Government ordered the abolition of Native Medical Institution and the Medical Classes of Sanskrit College and Madrasa.

In this way the study of Āyurveda under Government patronage came to an end although this study was kept alive by the zeal and spirit of physicians without any help from the state, says Dr. Girindranath Mukhopadhyaya (Vide p. 18 of his Introduction to *History of Medicine* Vol. II, Calcutta, 1926).

The *Sanskrit Wörterbuch* (Petersburgh)¹ records no other references to *अश्वत्था* except those in the *Sūtrata Samhita*. If *अश्वत्था* is a kind of *मेथिका* called in Persian *हिस्मिन* (हिस्मिन or अहिस्मिन) we must investigate the antiquity of the word *मेथिका* or *मेथी*. In this connection we may note here the remarks of A. K. Nairne in his "*Flowering Plants of Western India*", London, 1894. These remarks are as follows:—
Page 77 — *T. Foenugroecum* — Erect, robust, stipules entire. leaflets lanceolate oval or obovate, flowers pretty, pod long, thin and pointed.
Methi.

Commonly cultivated for *baji*, as it is also in S. Europe. It was adopted as fodder by the Romans from the Greeks; hence the specific name."

If *मेथिका* or *मेथी* was adopted as fodder by the Greeks and Romans, it is no wonder that it should be mentioned as *अश्वत्था* in the *Sūtrata Samhita*. In the two veterinary treatises² dealing with horses called the *अश्ववैद्यक* by Jayadatta and Nakula we find the word *मेथिका* in the following extracts:—

P. 334 (of *अश्ववैद्यक* ed. by Umesh Chandra Gupta, Bib. Indica, 1886. Calcutta) — (अश्ववैद्यक by जयदत्त)

"श्रीवर्चसं तथा ह्यिदं पुष्करं विद्वदादिमम् ।

अधिकं मेथिकाक्षेपां शिपकं पिषडं च कारयेत् ॥८॥ "

(रत्नावनकल्प—chap. 68)

1. "अश्वत्था — (von अश्वत्थ) f. N. einer Genuß-pflanze-sūtrata, 1, 220, 12 ; 2, 48, 10.

2. Keith (*History of Sanskrit Literature*, Oxford, 1928, p. 465) refers to *अश्ववैद्यक* of जयदत्त and *अश्ववैद्यक* of नकुल but does not give their chronology. Dr. Girindranath Mukhopadhyaya (*History of Indian Medicine*, Vol. II, Calcutta, 1926, pp. 356 — 399) has written a big chapter on *अहिस्मिन* in which he refers to the works of जयदत्त and नकुल but does not discuss their chronology. Nakula's *अश्ववैद्यक* is also called *अहिस्मिन*. जयदत्त quotes from *अहिस्मिन*, नकुल, शर्वाङ्ग and ऊर्ध्व (p. 375 of chap. on *अहिस्मिन* by Mukhopadhyaya). In the *Glossary of Drugs* mentioned by जयदत्त, given by Umesh Chandra Gupta at the end of his Edition of *अश्ववैद्यक* of जयदत्त we find *अहिस्मिन* or *Opium* (p. 3). Thakore Saheb of Gondal (p. 126 of *Argan Medical Science*, London, 1896) states that *Opium* (*अहिस्मिन*) was imported into India from Arabia synchronously with the advent of Mahomedans. शर्वाङ्गसंहिता (Poona, 1917, ed. by Y. Dikshit) refers to *अहिस्मिन* (p. 75—"अहिस्मिनं यस्मिन्निमित्तम्" and p. 165—"अहिस्मिनं पिषडम्"). According to Hobson-Jobson the word *Opium* is Greek in origin. The Arabic word *afyūn* is derived from a Greek word. Dioscorides (c. A. D. 77) and Pliny (c. A. D. 70) refer to *Opium*—Usages recorded in Hobson-Jobson are dated c. A. D. 70 (Pliny) and 1511, 1513, 1516, 1563, 1568, 1598, 1610 etc. *Opium*-poppy was taken to China from Arabia at the beginning of 9th Century. Possibly it was introduced into India after 9th century A. D. ऊर्ध्वसंहिता's *अश्ववैद्यक* is possibly later than 9th Cent. A. D.

Page 51 (of *अथर्वविहित* by नकुल) Bib. Ind., Calcutta, 1886—

“मेथिका धानकी, काली सारखी बीजद्रवः ।

पिण्डो दत्तो वराधानां तेजोवृद्धिकरः स्मृतः ॥३॥”

(*पिरिडाप्पाय*, chap. 13)

This use of मेथिका in the treatment of horses supports Dallana's explanation of *अथर्वला* as a kind of मेथिका called in Persian *हिस्मित* (*हिस्मित* or *हिस्मित*) which means fodder for horses.

I have already quoted Khan Bahadur Prof. Shaikh's opinion that *हिस्मित* (= *अथर्वला*) is no other than what we call “Lucerne grass” so freely given to horses in India, Persia and Turkey. In this connection I reproduce below the remarks of A. K. Nairne on the antiquity of Lucerne grass (Page 77 of *Flowering Plants of Western India*):—

“5. *Medicago* (*M. Sativa*).

Purple medick or *Lucerne*, not wild in India any more than in England, but widely cultivated.

Hehn says that the name *medicago* (originally *medike ppa*) shows that the plant came originally from Media and quotes the following strong evidence from Columella¹, a Spanish writer on agriculture in the reign of Emperor Claudius:—

“*Lucerne* once sown lasts ten years; it is sown four times a year regularly, sometimes six; it does not exhaust the soil, but rather enriches it; it makes lean cattle fat, and heals the sick; one acre of it will keep three horses the whole year.”

The above description of *Lucerne* of *Medicago* of c. A. D. 41 establishes clearly the antiquity of this plant for more than 2000 years. If *Lucerne* is not wild in India and if its home was originally in *Media*, we have to see how it has migrated to India. If *Lucerne* is a variety of *Methika* can we establish any relation of the word मेथिका with *medick*² or

1. Vide p. 162 of Smith's *Smaller Classical Dictionary* (Everyman's Library, London, 1913):—

Columella, L. Junius Moderatus a native of Gades in Spain and a contemporary of Seneca. We have no particulars of his life, but Rome appears to have been his ordinary residence. He wrote a work on agriculture (*De Re Rustica*) in 12 books which is still extant. His style is easy and ornate.”

Seneca (L. Annaeus), the philosopher was one of the early instructors of the Roman Emperor Nero (A. D. 54-68). Nero was adopted by Claudius I (A. D. 41-54). Seneca was born a few years before Christ and died after A. D. 65 by order of a tribune.

2. See *Shorter Oxford Dictionary*, p. 1227:—

Medick—late M.E. (ad. L. *medica*, ad Gr. meaning ‘Median grass’). Any plant of the genus *Medicago*, especially *M. Sativa*, Purple medick or *Lucerne*.

Medicago or *Media* ? The word मेयिका used by जयदत्त and मङ्गल in the अष्टाध्यायी and अष्टाध्यायिकसिंह, which are evidently later than the 9th century A. D. is not found in early medical texts. The only equivalent of मेयिका in early medical texts is the term अश्वबला, which in itself is adjectival, being a compound of अश्व and बल meaning "giving strength to horses." Perhaps the word मेयिका is connected with the names *Media*, the home of Lucerne or मेयिका and the consequent names *medick* and *Medicago*. Can any linguist explain how the word मेयिका is derived historically or otherwise ? As मेयिका with its different varieties, whether used by men or by cattle, has migrated from its original home *Media*, are there any linguistic traces of this migration in the name मेयिका used by जयदत्त and मङ्गल (later than A. D. 800) and इल्लह (c. A. D. 1100) who mentions its Persian name *हिस्मिय* (or *हिस्ति*) ?

Though मेयिका appears to have been introduced early into India as fodder for horses as the term अश्वबला used by *Suśruta* indicates, a variety of it came to be used in Indian diet. Accordingly in later medical texts it was mentioned as an edible vegetable with its properties as illustrated in the following verses¹ quoted by Pt. Ramachandra Shastri Kinjavadekar on p. 195 of his edition of अष्टांगसंग्रह (छद्मस्थान), Poona, 1940 (Appendix) :—

मेयिका — “स्वावाससिता बार्ह दालपुष्पा यदोरितम् ।
किं तथा कियते भूया स्वैरेव स्वीयभोगिका ॥
यदातेनैव सकलं भोजनागारमन्नपाम् ।
वासितं मेयिकाग्रन्थे किं स्ववासमुवासिता ॥
मेयिकाकं पयसि पिष्टं स्वेदितं पीडितं हि ॥
प्राज्ये स्वाज्ये जरणासहिते सेवितं भजितं हि ॥
कामोष्णबाधं प्रसृतमधिकं कफितो जाठराग्नि-
येन प्राणं सुषण्डपुणितं भक्ष भूयोऽपि भूयः ॥

p. 1174—*Lucerne*, *Lucerna*-1626 (In 17th and 18th centuries agricultural books, often *la lucerne* with Fr. *Cétoite* article) [a Fr. *lucerne* ad. mod., Fr. *lucerne*; etym. unknown]. The leguminous plant *Medicago Sativa* resembling clover, cultivated for fodder, purple medick.

1. Pt. Kinjavadekar has recorded extracts in his Appendix to अष्टांगसंग्रह (छद्मस्थान) pertaining to the following eatables and vegetables :—अश्व, वृष, गुरुकुल्ल, वायुस्थान, वृष, cow, buffalo, the goat, etc. (Marathi वायु). इल्लह, कर्मी *Vegetables and Fruits* :—कुल्ल, किल्लि, शिमो, कोशासको, टोली, कर्मोपल, कृष्णाए, सुस्वादुस्वर अ preparation of कृष्णाए, तुलिका, कर्णाएकृष्णाएक, बामलकृष्णाए, शामुरो, बामलकृष्ण, कारवेल्लोपल, कर्कोटकपल, हरितवणक, उरुम्बरकल, बार्हकर्म, कर्कोटकल, कुटजकल, कर्लोपल, राजमावादिकल, एररककल, बालुक, उरुडली, शलपुष्पा, मेयिका, प्रभाट, लोणिका, बालकलाक, पालिक्य, सुक, कोमुम्भ, कुटजपुष्प, शोमाजन, कनार, बालिककुम्भ, कोशातकोपल, बामलकृष्ण, निम्बपल्लव, कर्लोदक, सायपदक, मलक, कर्लोपल, हरण, गुराल. — The extracts pertaining to these edibles are useful for the history of Indian dietetics, as they describe the manner of preparing dishes from them, and also describe their medical properties.

मेयिका दीपनी इया बद्धिन् कृषियुक्तन् ।
करोष्यं तत्फलं कासानिलरत्नेभ्यश्चमोजयेत् ॥ ”

As regards the migration of मेयिका to India I have to observe that it may have followed the importation of Persian and Turkish horses from early times. Some of the foreign breeds of horses were very popular in India. Jayadatta¹ in his *सद्यवेयक* has recorded in a special chapter the several kinds of horses according to their native places. Among these kinds he states that *Persian* and *Tajika* horses are the best (उत्तमास्त्राजिकाः श्रेष्ठास्तथा पारसिकाश्च ये). He also refers to Turkish horses (तुरीयाः) and describes them (तुराणाः कीर्तितो राज्ञी स्थूलवक्त्रमुत्तम यः). Nakula² in his *सद्यविधिस्त* refers to a few kinds of horses in which *Tajika* and *Khurasana* horses are stated to be the best (ताजिकाः सुरक्षायाश्च उत्तराश्वोत्तमा इयाः). In view of these explicit references to Persian and Turkish horses in Sanskrit treatises on horses it is possible to suppose that the regimen of these horses as current in Persia and Turkey may have been adopted by Indians with a view to keeping them fit and consequently मेयिका or इस्ति or *Lucerne* grass must have been imported to India and cultivated on Indian soil from the time, when these horses began to be imported to India.

1. Vide Chap. VI of *उदयनोद्यक* (*Bib. Indica*) pp. 70-73.—I note the kinds of horses according to उदयनोद्यक mentioned by उदयन in this chapter:—ताजिकाः, पारसिकाः, श्रेष्ठाः, तुराणाः, शीराः, धुराणाः, मागजकाः, पायलाः, शैव्याः, सारसकाः, साम्याः, कुजाः, जटेशोदकाः, शोकाश्वः, जटेशोदकाः, दक्षिणाश्वः, पूर्व देशमुद्रकाः.

2. Vide chap. II of *सद्यविधिस्त* (*Bib. Indica*) pp. 4-7.—Nakula mentions the following kinds of horses:—ताजिकाः, सुरक्षायाः, उत्तराः, शोकाश्वः, श्रेष्ठाः, मागजकाः, राजकुलाः, गोहाराः, शाराः, सिन्धुपाराः.—It is worth-while studying the history of the foreign horse-trade in India from early times, if such a study has not been attempted already by any scholar. The *materia medica* or the treatment of horses as recorded in the treatises of उदयन and नकुल is likely to contain some foreign elements, which need to be ascertained.

44. Studies in the History of Indian plants — Some References to *Āśvabalā* in the *Carakasamhitā* and the *Suśruta-Samhitā**

I published in *Bhāratiya Vidya* (July 1946) a paper on "*Āśvabalā*" a vegetable mentioned by *Suśruta* in the *Sakavarga* of *Satrasthana* (pp. 232-233 of N. S. Press Edition, 1938) Chap. 46 in the following lines :—

“तण्डुलीयक—उपोदिका—अश्वबला—पालङ्कया-

वाल्क—प्रभृतीनि ॥ २५६ ॥” and

“शाकमाश्वबलं रुतं वदयिष्यमादतम् ॥ २६१ ॥”

The commentator Dallana (c.A.D. 1100) explains अश्वबला as “वहापत्रा मेयिकाभेद” known as *हिस्कित्य* in तुल्यदेश. Dallana further states : in a तन्मान्तर मेयिका and *हिस्कित्य* are described as having different गुणस or properties as follows :—

“वातविण्णहरा तिक्ता लघ्वी श्रेष्ठाविरोधिनी ।

मेयिका तत्तमं किंचिद्विस्कित्यं पुष्टिदं गुडा”

According to Prof. A. K. Shaikh “*हिस्कित्य*” is same as the *Persian* word “*हसिल*” or “*असिल*” which is called in *Arabic* “*Fasfīsat*” and in *Turkish* “*yunja*” or “*yuncha*.” Prof. Shaikh thinks that *हिस्कित्य* = *Aspist* (*asp*, i.e. horse + *pist*, i.e. meals) = *Lucerne grass* (*मेयी* is one of the varieties of this grass).

We have no means of knowing the exact meaning of the term “*अश्वबला*” used by *Suśruta* except Dallana’s explanation recorded above. It is, therefore, premature to make any definite assertion about the accuracy or otherwise of Dallana’s equation

“अश्वबला = *हिस्कित्य* = बृहत्पत्रा मेयिकाभेद.”

We must, however, see if there are any other references to *अश्वबला* in *Suśruta*. If such references are found we must see what explanation of these references is offered by Dallana in his commentary. Since the publication of my paper on *Āśvabalā* in the July 1946 issue of the *Bhāratiya Vidya* (pp. 67-80) I was fortunate in coming into contact with Mr. B.C. Deb, M.A., B.L. of Calcutta. I sent to him my paper on *Āśvabalā*, which interested him very much. He lost no time in studying it closely

and making his observations on it. I requested him to put these observations in the form of a paper so that they will be of immense use to brother scholars interested in this subject. In spite of his busy life as an Advocate Mr. Deb responded to my request and sent me his paper on *Āśvabala*. I have great pleasure in publishing it along with this paper.

I agree with Mr. Deb in the following remarks in his paper :—

"So, it seems *Sūśruta*'s अश्वबला is a variety of मेथिना (मेथिनामेर), being the first of the above two varieties, i.e. मेथिना proper or *officinalis*, *T. Faenum Græcum*."

As regards Mr. Deb's other remarks I am not quite competent to evaluate them as I don't possess the required botanical knowledge or the reference books pertaining to a specialised study of botany. I have however, to keep at the disposal of Mr. Deb the following additional references to अश्वबला :—

- (1) Mr. Deb states that "the word अश्वबला is found in *Sūśruta* but seems to be absent in *Caraka*." I have to point out that the term अश्वबला is mentioned by *Caraka* in the following extract¹ :—

Carakasamhita (p. 387 of N. S. Press Edition, 1941) *Cikitsasthāna*, Chapter 1, *Pada* 4 (सामानपाद) :—

ब्रह्मशुबर्चला..... नारी नाम-
श्रीपथिः "अश्वबला" इति विज्ञायते
या बलवज्जलदरापत्रा..... दशवर्ष-
सहस्राणि श्रापुर्मुपद्रवं चेति"

(for "बलवज्ज" the foot-note records the variant "पुनरज"). According to *Manusmṛiti* II, 43 बलवज्जः = A kind of coarse grass (Apte's Dict.)

Cakrapāṇidatta (c. A. D. 1060) does not explain the term अश्वबला in the above extract as will be seen from the following extract from his commentary :—

"ब्रह्मशुबर्चला प्रभृतयो वयो कलङ्कणादिव्योषधयः
नातिप्रविद्धाः । आदित्यपथौ वृषावर्तमेव
देशविशेषजातं चेत्तिदृशयन्ति । अश्वबलेति
ज्ञायते इति श्रुतिभिरेवानेन नाम्ना ज्ञायते
न लौकिकैः, लोकाप्रविद्धत्वात्..... ॥"

1. I owe the reference to this extract to my friend Dr. Shrinivas Murti, Director, Adyar Library, who sent me on 22-11-1946 some extracts bearing on my studies for which I record here my best thanks. Without such voluntary co-operation it is impossible to tackle or clarify complicated problems of history and philology.

It will be clear from the above extract from the *Carakasamhitā* that a plant of the name मारी¹ was known as "अश्वत्था" to Caraka.

If now the अश्वत्था plant mentioned by Caraka is identical with the अश्वत्था mentioned by *Sūśruta* and if further Dallana's explanation of अश्वत्था as द्विस्त्रय is true to facts we can put down the following equation :—

मारी — अश्वत्था = मेथिकाभेद = द्विस्त्रय

I hope Mr. Deb will examine the correctness or otherwise of the above equation in the light of his study of medical commentaries and works on botany and *materia medica*. I would also like to know from him if he has noted any references to the plant मारी in medical or non-medical texts.

(2) In Chapter I of *Cikitsāsthāna* of the *Sūśrutasaṃhitā* (p. 406 of N. S. P. Edition) the use of the leaf of अश्वत्था (अश्वत्थ पत्र) is prescribed against wounds as this chapter deals with the treatment of wounds (द्विष्णीय चिकित्सित). The verse (113) of this chapter reads as follows :—

"पत्रमाश्वत्थं यथ कास्मरीपत्रमेव च ॥ ११३ ॥"

"पत्रदानविषयमाह — शिराशाम्ब्यादि । दोषकोशेष्य पत्रविशेषमाह । एतद्वैद्यैः । मुगमम् । पत्रमाश्वत्थमिति । अश्वत्था । ओम्बो । तस्या इदमाश्वत्थं, ब्रह्मदेवस्तु अश्वत्था यवनभूमौ मेथिकाकारबीजा भवतीत्याह ।"

The expression "अश्वत्था उपोदिका," which appears to explain अश्वत्था — उपोदिका, seems to me textually faulty as in Chapter 46 of the *Sūśruthān*, *Sūśruta* mentions उपोदिका and अश्वत्था as two different vegetables.

("तद्वृत्तीयक — उपोदिका — अश्वत्था — पालङ्क्यान्वाल्क — प्रभृतीनि ॥ २५६ ॥" — pp. 232-233)

Dallana comments on this passage as follows :—

"तद्वृत्तीयकः 'बुलाह' इति लोके ; उपोदिका पोह ; अश्वत्था तु रुक्मदेशे दृष्टव्या मेथिकाभेद एव द्विस्त्रय इति लोके"

If उपोदिका = पोह according to Dallana, he should not be made to equate it with अश्वत्था. If we drop "उपोदिका" from the passage on p. 406 and merely read "अश्वत्था तस्या इदमाश्वत्थं" we can get better sense, as Dallana is explaining the adjectival form "आश्वत्थम्."

1. See p. 604 of *Vaidyaka-Sambodhinī*, revised and enlarged by Kaviraj Nagendranath Sen, 1888.

"मारी, ओ । तत्राचकोषविधिरेवे । या अश्वत्थेति कथ्यते । यस्याः पत्रम् अश्वत्थपत्रम् । च. वि. १ अ. २ मर्यादा । देवे मानुष । सा यादृकोष्णितोत्तरा । विषमतिथी जाता च । मुखकोषः ॥"

See also pp. 83-84 — मेथिः (का, घी) को (*Trigonella Foeniculum Graecum*) *Fenugreek* ता द्विधा मेथी बनयेयो तत्पर्यायः — गुणाः — रा. वि. ६. १ । अन्वा — "तल इत्यप्यगुणा कस्या वाजिनां ता तु वृजिता" भा. (भाष्यकाश १) ।

"मेथिका वातघ्नयो वैशिका वातला मला" भा. वि. १६ अ. ॥

Dallana quotes an earlier commentator ब्रह्मदेव in explaining the reference to "अश्वबलं पत्रम्" and states that according to this commentator अश्वबला is "मेथिकाकार बीजा" in the यवनभूमि. The "यवनभूमि" mentioned by Brahmadeva corresponds to the "इण्डो-इरान" mentioned by Dallana. The expression—"मेथिकाकार बीजा" may mean "Having the आकार (shape or appearance) and बीजा (Seed) of मेथिका." If Dallana's statement is correct ब्रह्मदेव appears to have known much earlier than Dallana (c. A. D. 1100) the relation of अश्वबला with मेथिका. The connection of अश्वबला with यवनभूमि referred to by Brahmadeva is also very significant chronologically as Brahmadeva appears to have flourished earlier than c. A. D. 1000.¹

(3) The third reference to अश्वबला in *Sūśruta* is in Chapter 6 of चिकित्सास्थान, which deals with the treatment of piles (अर्शस चिकित्सात्). See p. 43, of N. S. Press Edition, 1938. It is as follows :—

".....यथा शोषं शक्यं स्तब्ध—तण्डुलीयक—जीवनपुत्रोदिका—
अश्वबलावर्णाभिरन्येषा ।"

Dallana explains :—

"॥ अश्वबला हि फली मेथिकाभेदः ॥"

It would be clear from this reference that अश्वबला of *Sūśruta* was identified in Dallana's time with a variety of मेथिका, called by its foreign name हिमिल्य or हिस्लीय. Whether the अश्वबला of *Sūśruta* is identical with the अश्वबला of *Caraka*, is a problem, which needs to be investigated.² In the absence of Word-Indices to our voluminous early medical texts the study of individual words and their explanations given by early commentators is much handicapped. Recently many Ayurvedic institutions have been started in India. If the authorities of these institutions really care to stimulate a critical study of early medical texts they must organize their work on modern lines and publish not only the critical editions of these texts but other ancillary compilations like word-indices etc. which would help a close study of the enormous linguistic material and thus bring it within the domain of exact scholarship.

1. Vide my paper in *Indian Culture* (1944) Vol. XI, pp. 36-39. Cakrapāṇidita (c. A. D. 1000) mentions ब्रह्मदेव as an earlier commentator (पूर्वटीकाकर्तृ) in the following extract :—

"अयं च पाठः पूर्वटीकाकर्तृभिः भासत—स्वाध्यासापाठवर्ष—ब्रह्मदेव-प्रभृतिभिः
व्याख्यातवत् न प्रतिशेषोऽयः । सर्वनाम्नाभिः समानोऽयं पाठः ।"

(Vide p. 419 of *Caraka-Saṃhitā—Cakrasaṃsthāna*, 216-217, N. S. Press, 1941).

2. We want to know from Persian scholars the exact meaning of हिमिक (हिमी) लव from Persian sources earlier than A. D. 1100.

45. References to Tobacco in some Sanskrit works between A. D. 1600 and 1900*

During the last twelve years I have published many papers on the history of Indian plants especially of medical and nutritive value. All these papers will now appear in Vol. IV of my Studies undertaken for publication by the Vedic Research Institute of Hoshiarpur. Many of the Indian plants which have enriched Indian life and culture were imported into India at different stages of India's age-long history as my papers have amply revealed. A study of the migration of plants from their native homes is as entertaining as the study of human migration. Among the American plants that have migrated to the other parts of the world including India the *potato* and the *tobacco* are important ones. These two plants though introduced into India about the beginning of the 17th century have influenced Indian life and culture to such an extent that many people have forgotten their foreign origin. I intended to write an elaborate paper on the history of one of these plants viz. *tobacco*. Accordingly I have collected some material especially from Indian sources. A part of this material is released in the present paper which records some references to *tobacco* in Sanskrit works composed between c. A. D. 1600 and 1900. Though *tobacco* entered India about A. D. 1600 its use and production spread rapidly to such an extent that India is to-day one of the three largest *tobacco*-producing countries of the world.

In the *Subhāṣitaratnabhāṣagāra*¹ (N. S. Press, Bombay, 1911) the following seven Sanskrit verses of unknown date and authorship are recorded :—

* *Annals* (B. O. R. Institute), Vol. XXXVIII, pp. 225-232.

1. The editor has recorded in foot-notes on page 104 the meanings and double meanings of some of the words in the seven verses on *tobacco* recorded by him. They are :—

Verse 1—आह्वयम् = आह्वयः आह्वयः वाहनं यस्य

— मा = लक्ष्मीः

आह्वयद्वयं तमाह्वयं मा भव

Verse 3 — विद्वान् = विद्वान्

— पश्यन्ति = पश्यन्ति

Verse 5 — सुपथेन गच्छेत् सेवितः ; (पत्ने) सुपथेन गच्छेत्

दत्तेन च परिसेवितः

Page 104 — तस्मात्तुः ।

० तस्मात्तुपत्रं राजेन्द्र भजमाह्वानदायकम् ।
 तस्मात्तुपत्रं राजेन्द्र भजमाह्वानदायकम् ॥ १ ॥
 दाशिमदाह्वानं नरस्तस्मात्तुं नैव मुञ्चति ।
 निवारितोऽपि मार्जारस्तस्मात्तुं नैव मुञ्चति ॥ २ ॥
 पिडीताः पुत्रा दृष्टवन्त्यस्योनि
 परिशीतले साधून् किञ्चित् ।
 चतुर्मिर्मन्त्रैरस्योच्चरिषि-
 तस्मात्तुस्तस्मात्तुस्तस्मात्तुस्तस्मात्तुः ॥ ३ ॥
 न स्वादु नीपधमिदं न च वा सुखं
 नास्तिमिथं किमपि शुष्कतस्मात्तुचूर्णम् ।
 किं चादिरोगजनकं च तदस्य भोगे
 योतं यथा नहि नहि स्वसनं विनाभ्यन् ॥ ४ ॥
 सुगन्धं रसितेतिस्तदनु साधुर्लभ्यते
 दिवाचनमहापटुस्तदनु सारसंधानभाक् ।
 सदैव सुधयाशनं भवति यस्य विष्णोः सम-
 स्तस्मात्तुतिरिति सेव्यतां भवति नै यतो रागिता ॥ ५ ॥
 धोकृष्यः पूतनायाः स्तनमलमपिबत्काखट्टेन पूतो
 प्रस्कन्धं भयदेशे किमपि च पिबतो यमदा तस्य बभूवात् ।
 तस्मादेवा तस्मात्तुः सुरवरपरमोच्छिद्यमेतत्तदुत्तरार्धं
 स्तुत्वा नत्वा मिलित्वा हानिनामतिमुदा सेव्यते वेणुभाष्ये ॥ ६ ॥
 भातः कस्य तस्मात्तुर्गमनमिह कुतो वापिधेः पूर्णपारात्
 कस्य त्वं दहधधारी नहि त्वं विदितं धोकलेरेव राज्ञः ।

- साधूनां पूनैः संघैः अन्वितः ; (पक्षे) साधुः सगङ्गाः
 क्रमुकः तेन अन्वितः
- दिवाः दिवन्मानः ब्राह्मणादयः तेषां श्रवणं रक्षणं
 तस्मिन् महासमर्थः ; (पक्षे) दिवाः दन्ताः
- सारं श्रेष्ठवस्तु मोक्षादि तस्य संधानं संधि भजति
 (पक्षे) सारः खदिरसारः तेन संधानं सम्भक्त्वेन भजति
- सुधया अमृतेन यस्य भोजनं भवति ; (पक्षे) सुधया
 चूर्णेन सदैव यस्य भक्षणं भवति
- यतो विष्णोः श्रारागिता विषयेषु अग्रीति जायते ;
 (पक्षे) यतः तस्मात्तुः तस्मात्तुपत्रात् रागिता
 मुखरक्तिमा जायते

Verse 7 — विधात्री, adjective of ब्रह्मणा

चातुर्वर्त्यं विधात्रा विविधविरचितं मद्यमा धर्महेतो-
रेकोपकृतं कलातत्त्वविरचितवर्गति रे शासनादगमोस्मि ॥७॥ "

From the foregoing verses we learn the following details about the use of tobacco :—

Verse 2 — Howsoever poor a man may be, he does not leave the use of tobacco.

Verse 4 — "गुग्गुलुपात्रपुष्पं" or dried powder of the tobacco leaves was used for smoking and chewing.

— "गुग्गुलुपात्रपुष्पं" i. e. the chewing of tobacco powder mixed with *chunam* had become common.

— Reddening (रागिला) of the mouth was caused by the chewing of tobacco mixed with *chunam* (गुग्गु).

— The users of पुष्पं (betel leaf) and the betel-nut (वृक्ष) with सार (सोदरसार) i. e. powdered *catechu* also used to chew the tobacco powder in combination with these ingredients of *tambula*.

Though the authorship and chronology of the verses recorded above is unknown, I have reason to believe that they were composed at a time when the use of tobacco had become very popular in India and all prejudices against its use even in orthodox circles were fast disappearing.

In the *Rajavyavaharakosa*, a lexicon prepared by Raghunatha Pandita by the order of Shivaji the Great about A. D. 1676, many foreign words are recorded and explained. Among these words we find the following references to tobacco (*tamaku*) :—

Verse 89 on p. 8 of *Rajavyavaharakosa*, Poona, 1880 —

"धूमपानं गुग्गुली तमाक्षुर्धूमपानम् ॥"

This line records two words viz.

(1) गुग्गुली = *Hookah* for smoking.

(2) तमाक्षु = tobacco leaf used for smoking.

This reference clearly shows the currency of the tobacco smoking in Maharashtra about A. D. 1676. This popularity of tobacco in the Deccan is further vouched by other references recorded in this paper.

The use of tobacco in Shivaji's army had become current in the middle of the 17th century. In his order to his officers issued in A. D. 1673 he warns them against the careless smoking of tobacco pipes, which was likely to result in the breakout of fire destroying the fodder for horses etc. (see p. 114 of *Source-Book of Indian History* by K. S. Kini, Mangalore, 1933 — Document No. 61 taken from *Shivaji Souvenir* by G. S. Sardesai). The pertinent extract in this order reads as follows :—

"Some will take away live coal for smoking their tobacco-pipes with, without minding the direction in which the wind might be blowing or the grass that might have been lying about, thus causing ruinous fires unexpectedly."

Lolimarāja, a physician of Junnar in the Poona District, lived between c. A. D. 1575 and 1625. He composed several medical works in Sanskrit, one of which is *Vaidyavataṃśa* represented by a MS in the Govt. MSS library at the B. O. R. Institute, Poona (No. 601 of 1899-1915). The MS is dated Śaka 1724 = A. D. 1802. On folios 6 and 7 of this MS the following verses about *tamaṃṣu* (tobacco) are found :—

धूम्रास्यो धूम्रश्चैव बृहत्तत्रैव धूम्रः ।
 तमासु गुच्छफलको धूम्रग्रप्रदंशुकः ॥ ५६ ॥
 बड़बोजो बड़फलो छद्मबोजश्च दोषकः ।
 दोषपाटलवर्णा च पुष्पं यस्य प्रकीर्तितं ॥ ५७ ॥
 तस्य पत्रं तु तोक्षणीय्यो कफघातहरं परं ।
 श्वासकासहरं चैव कोष्ठघातहरं तथा ॥ ५८ ॥
 वातातुलो मनकरं वस्तिशोषनमुत्तमं ।
 दंतचक्रायनं चैव क्रिमिपुकादिनाशनं ॥ ५९ ॥
 मदपित्तभ्रमकरं भ्रमनं रचनं स्मृतं ।
 दृष्टिमांशकरं चैव क्षौण्ण्यकरं परं ॥ ६० ॥
 तस्यैव धूम्रानेन विशेषारष्टियुक्कहतं ।
 देहान्तरप्रमेदेन तोक्ष्यव्यातोश्च पित्तलं ॥ ६१ ॥
 कमनस्य प्रभावेन वृद्धिकादिष्विदं हरेत् ।
 रचनादहरेद्रातं रतेष्वाणं च विनश्यति ॥ ६२ ॥
 इति तमासुनामगुणोऽथ प्रबोधास्तस्मिन् ॥ "

The above seven verses do not appear to form part of the *Vaidyavataṃśa* of Lolimarāja as tobacco had not become very popular in the Deccan during the life-time of Lolimarāja (c.A.D. 1575-1625). This supposition is further supported by the statement of the colophon at the end of the verses viz. "ग्रंथतरात् संग्रहीतं" i.e. "gathered from another work." We have now to find out the source of these verses interpolated in a MS of the work dated A.D. 1802. In this connection the following facts may be noted:—

- (1) These seven verses are found in the medical compendium *Yogarātnābhara* which was composed between c.A.D. 1625 and 1750 and a MS of which is dated A.D. 1740. Very probably the copyist of the MS of the *Vaidyavataṃśa* dated A.D. 1802 has

1. This MS of *Vaidyavataṃśa* records the properties of

ब्राह्म, आम्र, आम्ररस, शक्ति, बड़ोफल, नारिंग, राजादन, बकुलफल, चारोकोफल, कमरक, लकुच, सुशफल, कागदोमिबु, विच, आदं (बालं), आम्रक, भोकरं, सनं, कदलीफल, कौषा,

taken these verses from the *Yogaratanākara*.

- (2) Some of the properties of *tobacco* mentioned in these verses are also mentioned in the verses about *tobacco* recorded in the work *Śaligraṃanighaṇṭu*.
- (3) Whether these verses were composed by the author of the *Yogaratanākara* cannot be determined with certainty. It is, however, clear that they were composed prior to A.D. 1746, the date of one of the MSS of this work used by the editor for the edition of the work in the *Ānandaśrama Sanskrit Series*.

The anonymous medical compendium *Yogaratanākara* (ed. *Ānandaśrama Sanskrit Series* No. 4, Poona, 1900) was composed between c.A.D. 1626 and 1750 as I have shown in my paper on the date of this work published in the *Bharattya Vidya* (1943) Vol. IV. No 2, pp. 154—156. One of the MSS used by the editor of this work is dated Saka 1668 (= A.D. 1746). The following Sanskrit verses about *tobacco* are found in this compendium :—

Pages 17-18 — अथ तमाक्षुषाः ।

“धूमाख्यो धूमहृत्तम इहसत्रम् धूसरः ।

तमाक्षुषां न्युपलको धूमपत्रप्रकाशकः ॥ १ ॥

बहुवीर्यो बहुफलः सूक्ष्मवीर्यस्तु दोषकः ।

दीर्घ पाटलवर्ण च पुष्पं तस्य प्रकीर्तितम् ॥ २ ॥

तस्य पत्रं तु तीक्ष्णोष्णं कफवातहरं परम् ।

श्लेष्माक्षहरं वैष कोष्ठवातहरं तथा ॥ ३ ॥

वातानुलोमनकरं रसिरोभिन्नुत्तमम् ।

दन्तस्पर्शमनं वैष किमिह ह्यादिनाशनम् ॥ ४ ॥

मदपित्तभ्रमकरं वमनं रचनं रमृतम् ।

रट्टिमान्धकरं वैष तीक्ष्णशुक्रकरं तथा ॥ ५ ॥

वाक्पतचीलाशी भाजी, जीर्णलोहाक (साजकुहिरि इति भाषायां महाराष्ट्रेषु) पालक, चणक, कंचुक, कर्दई, धोळ, काजी, खर्प, बाटाणा, अणस्त्वाची कुल्लें, सेवसाची कुल्लें, मेथी, ब्यानीसेप, बडोसेप, सुरण, खेचिबोर, गाजर, लसुण, जौरे, खोबाडा, मूलक, सागरगोटे, माह, बादवेल, त्रिकेमालो, तमाखू (fol. 6). मांग, मांवा, शिकेकाई, भाभूल, कोरफड, उंटफटारासुलो, पडवळ, कर्कोटी, वेलोवलाचो शाक, बनमळिका, शिगाटे, काळा भोवळा, देवडागर, सादणो, कल्लगड, खरबूज, घेवडा, पनस, बांगो, जेंडा, बनानस, भाझो, पाचरी, परचरे, उंबर, साखरमिळू, माडुलिंग, तोरयो, हारडा, ब्याकवत, पोकाळा, माड, डिक, देवताळो, मुद्र, चणक, डुरो, उडोद, कुहिरि, बक्या, गोधूम, कुळिप, मठ, जोनळे, सजगुरे, बांटाणे, मधर, राळे, सावे, कोळव, नाचणे, बर्बा, साठ, जोडगड, पोढे, मळा कणिस, साळोच्या लाळा, भोम्या, फुटाचो, —मार्स of different animals, Milk of Cow, Camel, etc., Ghee, बधि, ठळ, नबनील,—वेडे (मंत्रिका), इष्टरस, मूत्र, लवंग.

तस्यैव धूमपानं तु विरोधाद्दि शुक्रकृत् ।
 देशान्तरप्रभेदेन तीक्ष्णं चाऽऽर्तवपित्तलम् ॥ ६ ॥
 वमनस्य प्रभावेण हृषिकादि विषं हरेत् ।
 रेचनवाद्देहात् अप्यार्षं च निवन्सुति ॥ ७ ॥
 इति धान्वादि फलकन्दशाकादि वर्गः ॥”

We get the following information about tobacco from the above verses :—

- (1) Description of the tobacco plant.
- (2) Its use for smoking in a Hookah (धूपयन्त्रकाशकः).
- (3) Its medical properties — Its use against tooth-ache, its germicidal properties (v. 4) — its use against scorpion bites (v. 7).

Panta Vitthala (Viṭhoba Anna Paradkar) composed a work called *Suslokalaghava* with “*Sadbhaktika*” in Śaka 1775 (= A.D. 1853). In the second edition of this work by K. N. Sane, 1895 we find the following reference to tobacco (तमाक्षु) :—

p. 115 — “धूपपत्री तमाक्षुरिति भाषायां । तां वर्णयति-
 सुपर्णपरिशोषितो भवति साधुप्राभितः
 करोति मुददस्थितिं दिग्गणस्य साराश्रितः ।
 सदा स्पृश्यते सुधामिति बुधा गदाभूत्सम-
 स्तमाक्षुर्ऽति सेव्यतां न विलोति यमं यत ॥ ५२२ ॥”

Com. सुपर्णेति । सु'उपर्णानि तां'सुलोदलानि तैः शोषितः सेवितः । साधु पूर्णं एषफलं दिग्गणस्य दंतानां ददस्थितिं दादये । धूपपत्री दंतदादर्यप्रदा पित्तकरो सरा (मता !)' इति वैद्यकात् । सारः सारिसारः । सुधां पूर्णं । अन्यत्र (गदा-भूत्सवे) सुपर्णो गदः । साधूनां सनकादीनां पूगः समूहः । दिग्गवां स्थिति पालनं । सारं श्रमाभिः सहितं चक्रं । सुधा अमृतं । एवं गदाभूता विष्णुना समक्षेऽसर्वदा सेव्यः किञ्च । यतः । रागं रक्तिमानं, रनेहं च । विष्णुस्तु वैराग्यं तनोतीति भेदः ॥ ५२२ ॥”

Vaidya Bapalal G. Shah in his *Nigharṣu Adarśa* (Vegetable Materia Medica) Part II (1928) devotes pp. 159-163 to Tobacco and records the following Sanskrit verses about tobacco :—

Page 159 — “ तमाक्षुः पित्तलोत्पिप्पलीयो वस्तिविशेषणः ।
 मदहृद्घामकस्तिको दृष्टिमान्धकरः सरः ॥
 वामकः कटुको दन्त्यो वातस्यानु वलौमकः ।
 कफकासधातुकोष्ठवातकृमीक्षये ॥

दन्तशुक्रदण्डो लिङ्गायुकादिकान् गदान् ।

वृद्धिकादिविषं शोषं नाशयेदिति कीर्तितम् ॥”

— शालिधामनिपण्डु

— “वज्रभङ्गी तु कट्युका चोष्णा श्वसदजापहा ।

हिक्का कर्षं कंठरोगं वातं गुल्मं च पीनसम् ॥

श्रीहां जन्ध्रामशूलमुदरस्य रुजं जयेत् ।”

— निपण्डुरत्नाकर¹

Page 160 — “कलञ्जलवेष्टनधू मवानाम्

स्वाहन्तशुद्धिर्मुखरोगहानिः ।

कफप्रमाथन्वरहानिकृञ्च

गात्रपर्वविद्याप्रयैकसेजम् ॥”

— विष्णुसिद्धान्तसारवली

Raghunatha Indrajī alias Katmbhat in his *Nighantā-Samgraha* (Junagad, 1893) records the following verses about Tobacco :—

Page 594 — अथ तमाकुनी नामगुण ५८६

“वज्रभङ्गीक्षारपत्रा कृमिघ्नो ताक्षकुट्टका ॥

— निपण्डुरत्नाकर

॥ गुणाः ॥ 1. तमाखुः पित्तलस्रोक्षणभोथो बस्तिविशोधनः ।

2. मदकृन्धामकस्तिको दृष्टिमांशकरः सरः ॥

3. वामकः कटुको रुच्यो वातस्यानुविलोमकः ।

4. कफकाशश्वासवातकोष्ठवातकृमीञ्जयेत् ॥

5. दन्तशुक्रदण्डो लीङ्गायुकादिकान् गदान् ।

6. वृद्धिकादिविषं शोषं नाशयेदिति कीर्तितः ॥

— निपण्डुरत्नाकर प. २१२

7. वज्रभङ्गी तु कट्युका चोष्णा श्वसदजापहा ।

8. हिक्का कर्षं कंठरोगं वातं गुल्मं च पीनसं

9. श्लीहां जन्ध्रामशूलमुदरस्य रुजं जयेत् ।”

— निपण्डुरत्नाकर प. १७७”

1. Possibly this work is identical with *Nighantā-Samgraha* published at Bombay in 1868.

Lines 1-6 in the above extract are quoted by Bapalal Shah in his *Nighaṇṭu Adarśa*, Part II, p. 159. The source of these lines is *Śaligrāmanighaṇṭu* according to Bapalal. Lines 7-9 are also quoted by Bapalal and their source is mentioned as *Nighaṇṭuratnākara*. Katābhaṭ also mentions this source for these three lines.

The tendency of Indian medical works was towards incorporating new plants into them and mentioning their properties as will be seen from the extracts about tobacco recorded from these works in this paper. I shall feel thankful if any readers of this paper point out to me any more references to tobacco in Sanskrit sources than what I have discovered and recorded above.

46. References to Tobacco in Marathi Literature and Records between A. D. 1600 and 1900*

Owing to my interest in the history of Indian plants, I have published more than twenty papers¹ on their history. No correct history of Indian plant-lore can be written unless the history of every Indian plant is reconstructed and recorded. Among the plants of medical and nutritive value there are many plants, which have migrated to India from different and distant parts of the globe like America. Tobacco, an American plant, migrated to Europe in the middle of the sixteenth century and thence to India about A. D. 1600. The history of this migration as reflected in the regional literature of India ought to be reconstructed. I am struggling in this direction and have collected some material which though scanty would be useful to other scholars interested in this subject. Accordingly I have sent for publication in the *Dr. Jadunath Sarkar Volume*² to be published by the University of Panjab, a paper on "*Some references to Tobacco in Sanskrit Works between A. D. 1600 and 1900.*" In the present paper I have put together some references to tobacco in Marathi records and literature for the above period (A. D. 1600 — 1900). Many more such references can be found by students of Marathi sources. I have, therefore, to request such students to record them with a view to supplementing my references. In particular I would like to know any references to tobacco in Marathi sources prior to A. D. 1600.

Some of the published Marathi documents contain references to tobacco and the duties imposed on its export and import into and from the Maratha country as will be seen from the following evidence kindly supplied to me by my friend Shri V. S. BENDRE :—

(1) *Sources of Maratha History* by V. K. RAJAWADE, Kharḍa 20, pp. 108-109—Document dated 12th December 1695 refers to duty on

* *Poona Orientalist*, Vol. XX, p. 20-21.

1. All my papers on the history of Indian plants are reprinted in the present volume of my *Studies in Indian Cultural History*.

2. This has since been published in 2 Parts, Price Rs. 50/-.

तंबाखू, cloth etc. (This volume was published by the B. I. S. Mandal, Poona, in 1915).

(2) चांगरेकालीन पत्रव्यवहार (B. I. S. Mandal Quarterly, Vol. XXVIII, Nos. 3 and 4. Jan.—April 1948, pp. 70-71). Document No. 81 dated 13th August 1773 refers to तंबाखू.

(3) Ibid, pp. 15-16—Document No. 10 dated about A. D. 1730 or a little earlier - Reference to the Portuguese conversion of Hindus to Christianity—Reference to तंबाखू.

(4) शिक्करिप-साहित्य *Khaṇḍa* 10, Sources of the History of Konkan, B. I. S. Mandal Series No. 86, pp. 8-15—Document No. 6 (17th Century) contains a long statement of various goods exported from and imported into *Peṭ* in the Kolaba Dist., and the duties imposed on them—Reference to duty on तंबाखू.

(5) Ibid, *Khaṇḍa* 5 (1942) B. I. S. Mandal Series No. 55; p. 15—Document No. 771 (about A. D. 1650)—Reference to duty on तंबाखू.

(6) Ibid, pp. 157-161, Document No. 919—Rates of duty on तंबाखू are given.

(7) —Ibid—*Khaṇḍa* 7, B. I. S. Mandal Series No. 50—Document No. 54 dated 15th February 1671—References to तंबाखू (pages 84, 89).

(8) —Ibid—p. 106—Document No. 65 dated 16th January 1683—References to तंबाखू and revenue charges on its crops in the Poona Paragana.

(9) —Ibid—p. 117 and 121. Document No. 66 dated A. D. 1689—Reference to revenue charges on तंबाखू and राताळे crops.

(10) —Ibid—*Khaṇḍa* III—B. I. S. Mandal Series No. 24, pp. 106-126—Document No. 498—dated 8th April 1693—Reference to duty on tobacco (तंबाखू).

(11) In the work called दुस्तक मेस्तक or मेस्तकपरिभाषा published by the historian V. K. RAJAWADE in the B. I. S. Mandal *Ahaval*, 1912, pages 28-56 we find a reference to the cultivation of the tobacco crop in the Deccan in the following lines :—

Page 39 — “तमाखू चाखि चलीन । हे हो जिनस गहन ।
सामाहीमाणि प्रजाजन । विशेष दिहचिती ॥ ३७ ॥”

Tobacco and opium are mentioned as being produced by the people twice a year. The MS of this work used by RAJAWADE is dated Śaka 1667 (= A. D. 1745) but the work itself belongs to the time of King Rājārām (A. D. 1670-1700) according to RAJAWADE (p. 27). In the Proceedings of the B. I. S. Mandal for Śaka 1833 (A. D. 1911) RAJAWADE

has published another *मेलरु* (pp. 131-41). *Tobacco* (तंबाखू) and *opiura* (*Aphin*) are also mentioned in this work (p. 132).

The Maratha King Shahu, who was brought up at the Mogul Court in his early life, was in the habit of smoking tobacco of two kinds viz (1) *Surati* (obtained from Surat) and (2) *Bagdad* (obtained from Baghdad). In a list of articles ordered by him from the English through Kanhoji Angria on 3rd August 1715 we find "तमाखू सुरती" and "तमाखू बगदाद" (See Document No. 53 in Vol. 8 of the *Peshwa Daftar* p. 38, Bombay, 1931).

In a document dated 21st December 1741 in the *Selections from Vaidya Daftar, Khanda* 3, p. 50 (B. I. S. Mandal, Poona) there is a reference to "तमाखूल." Possibly "गूल" in this reference means the charcoal ball used in a *Hukka*. The Editor explains "गूल" as "गुलकाडी" or a match to light the *Hooka* or a *Cigar*.

The Marathi poet Madhva Munisvara refers to tobacco and smoking accessories in his songs. His poems have been edited by P. V. GUBBI (मधवमुनीश्वरांची कविता, B. I. S. Mandal, Poona, 1933). GUBBI says that he died in *Saka* 1653 = A. D. 1731 (p. 17 of his *Caritra* at the beginning of the volume). According to Shri V. S. BENDRE this poet is later than saint Tukarama and before 17th December 1733, the date of his death. I note below some references to tobacco in the above edition of his poems :—

Page 2 — "जोगी जंगम लेव्हे म्हाति ते चायदात याचें मुखें ।
आफू आंग तमाखू लेवितो त्या तें तत्व बोधू मुखें ॥"

These lines mention the use of आफू (*opium*) आंग¹ (*hemp*) and तमाखू (*tobacco*) current before A. D. 1733 among the *Jogis* and *Jangamas* etc. of Maharashtra.

Page 146 — *Abhang* No. 499

"गुडगुडीचें पाणी नव्हे मंदाकिनो ।
जोर मेळवदनि उतरले ॥६॥
अपवित्र गांजा तंबाखू धूस ।
परास्तीसम लेखू नये ॥७॥"

These lines refer to गुडगुडी (*Hukka*) and the smoke of गांजा (*hemp*) and तंबाखू (*tobacco*) which was regarded as अपवित्र (*unholy*) in religious circles

1. See article on BHANG in *Hobson Jobson* by YULE and BURNELL. London, 1903, p. 59. References to *Bhang* from A. D. 1563 (Garcia, f. 26) onwards are recorded in this article. About आफू (*opium*) see article on *Opium* (p. 641) where references to *opium* from c. A. D. 70 are recorded.

Page 130 — No. 445 (Śloka)

“तो देवते दिव जिरे बुधारे ।

पाने तमासु जरदा चकारी

... .. ॥४॥”

The above lines refer to तमासु (tobacco) and जरदा¹ (tobacco used for chewing). The adjective चकारी applied to जरदा indicates a special variety of it. I have not been able to know exactly the meaning of this adjective.

The reference to Jarada² used for chewing is important as it shows that the use of tobacco for chewing purposes had become current in the Maharashtra long prior to the date of the death of Mādhyā Munīśvara viz. A. D. 1733. Very probably smoking and chewing of tobacco had become current in the Deccan simultaneously in the 17th century.

Page 155 — No. 528 (pada) refers to the following articles :—

- (1) तमासु — tobacco.
- (2) बंचो — A wallet used for keeping betel nut, betel leaves, nutcracker, tobacco etc.
- (3) घटाणे — A pouch for holding tobacco etc.
- (4) गाढणे — An earthen vessel for keeping Chunam used with betel or tobacco for chewing purposes.
- (5) फावळे — A small piece of cloth used for being fixed at one end of the tobacco pipe through which the smoke is inhaled by the mouth.
- (6) फोयले बुला — Chunam kept in a फोय (a mango stone of which the interior is cleaned and made hollow for admitting the Chunam through a small hole). Metallic receptacles of the size of a mango stone for holding Chunam were also current as they were more durable.

1. The name जरदा means “of a yellow or tawny colour” in Persian. In the *Rajavyavaharika* of Raghunātha Paṇḍita (c. A. D. 1676) several kinds of horses and their name are recorded in the *Caturāṅga*, verses 164—168 (Poona Edition, 1880). In verse 165 a tawny-coloured horse is mentioned as “जरदा” (“जरदा पित्रलः स्युः”). The tobacco used for chewing today is also of this tawny or yellowish colour.

2. References to the chewing of tobacco are rare. Two years ago Dr. KHANOLKAR, the Director of the Cancer Research Institute, Bombay, inquired about such references personally. I could not then give him any reference to Jarada, which I discovered later and reported to him.

Thomas BOWREY in his *Account of Countries round the Bay of Bengal* (A. D. 1669 to 1679), London, 1905, p. 303, refers to the chewing of tobacco, a habit then current in India and South Sea Islands. At Achin city in the north of Sumatra he was honoured with “Betel and Armo to eat and tobacco to chew, a custom used all India and south seas over.”

Page 156 — No. 529 (Pada) refers to the following articles :—

- (1) हुक्का — Hukka
- (2) पिलोम — An earthen tobacco pipe
- (3) तंबाकू — tobacco

Page 94 — No. 325 (Pada) refers to the use of the betel after dinner :—

“ जातनि जेवुनो पिब्या सेवुनी
पानसुपारी लवंगारे ।
मुल्लो मृगारादि सेवुनि बंगनेच्या रंगा रे ॥ २५ ॥ ”

In this stanza the word पिब्या possibly means small betel-leaf rolls with betel etc. At present पिबो means a cigarette and पिबा means a *tambala* (betel, betel-leaf with catechu, chunam etc.). In the present stanza the uses of पिब्या and पानसुपारी (betel-leaf and betel-nut) are separately mentioned. It may be possible to interpret पिब्या as small country cigarettes which people smoke while chewing पान (leaf) and सुपारी (betel-nut bits).

My friend Shri V. S. BENDRE has kindly supplied to me a very interesting extract about the condemnation of the habit of smoking tobacco by a Marathi religious Muslim poet of the 17th century. According to Shri BENDRE this poet of the name SHAIKH MAHOMAD flourished between A. D. 1570 and 1655 at Shrigonde village of the Ahmadnagar Dist., of the Bombay State. He composed a work called the योगसंग्राम (*Yoga-Saṅgrāma*) which was completed on 28th July, 1645¹. In *Prasaṅga* 16 of this work we find the following vigorous condemnation of the use of tobacco which was pervading in all ranks of the society in the *Mahārāṣṭra* in the 17th century :—

1. The Colophon of the *Yogasaṅgrāma* recording the date reads as follows :—

“ वर्षिष नाम संवत्तर — शुद्ध पृथिमा सोमवार । शुद्ध पक्षपूर्णे होतें ॥ ३१८ ॥ शुद्ध आषाढमास पारवा ऋषिक पदित्या सोमवारचो देवा..... ॥ ३१६ ॥ सुभारामभोल प्रातःकाल । बढती रविचंद्राचो प्रकाशकळा..... ॥ ३२० ॥ संपूर्ण प्रयागो बसव्या । ऐका पृथिमस केतो पूर्णता । शरण शेष महामय वका । छद्गुप्तरणी ॥ ३२१ ॥ ते दिवशी ग्रंथ संपत्ता ” = 28th July 1645 according to Shri BENDRE.

[In the *Madhyajyugina Caritrakora* by S. CHITRAV, Poona, 1937, pp. 782-783 there is an article on Shaikh Mahomad. His works recorded in this article are :— (1) योगसंग्राम (A. D. 1696) (2) निष्कलचक्र, (3) जालसा, and (4) यवनविजय. This article is based on the information about this poet (महाराष्ट्र-ऋषिकर्ष)”, Vol. I, pp. 236-248. The date A. D. 1696 for the *Yogasaṅgrāma* recorded here conflicts with Shri BENDRE's date for the work viz. A. D. 1645 (28th July)].

प्रसंग १६ या—

“सुहाणे वडूर गुणी भले । योगी बाळण म्हणवितो चांगले । मुक्ताको कडंदर नानांचे परिले ।
रहा लाडूनियां ॥ १६ ॥

या वेगळे राजभोईं भवारी । कुण्ड म्हणवितो परोपरी । जनांत वेढे म्हणू नेदी भिरवी सोरी ।
अविचार करूनियां ॥ १७ ॥

ऐसें लांगाय। काय कारण । ह्दय जोषांनी कोदले मद्भुवन । त्याचे कावांषिण करितो दहन ।
तमासुचे बावडी ॥ १८ ॥

एक नगर उडविल्याचो हिंसा । एका पिछडीने घेते ऐसा । सांगेन तो भाष परियेसा । समस्त हो
मुन्ही ॥ १९ ॥

जेव्हां मुरका अदितो आवडी । तेव्हां मुरखोडोन पडती लक्ष कोडी । मागुता जेव्हां धूर
उडवावें सोडी । तेव्हां अनंत प्रलय ॥ २० ॥

तेजे घा-पावाटे असु उडती । त्याहून कोंदले असंस्वाती । अणुप्या लक्ष कात्याने वृक्ष
घसती । दिसाळें कोंदली ॥ २१ ॥

लखलखाट वोळखा जनी विजनी । हें व्यास गृत तो ब्रह्मशानी । येर उदंड कपितां कपनी ।
मेले मरतील ॥ २२ ॥

विप्र महा आचारें तळमळी । मध्ये संकटाहून उंच माझी कुळी । मुलांत पाली गुडगुडीची
नळी । हीना हलरांची ॥ २३ ॥

या वेगळे पडती अनेक अनाचार । येरून येरांच्या मुलावरि उच्छिष्ट धूर । ठोडिती परि
नेणती विचार । परमार्थगुडीचे ॥ २४ ॥

धावें ओढून धूर कुंभक । उच्छिष्टासें ठोडिती बाहेर कुंक । लिके अंतरी जाय न नेणत
विनेक । उच्छिष्टाचापें ॥ २५ ॥

विप्र शुद्ध मळिबोई अनेक पातो । एके गुडगुडीसी स्पर्श करिती । आम्हांस या म्हणवून
नारी मागती । एका भ्रताराच्या अस्तंतां ॥ २६ ॥

येके नळीस बहुतां भ्रतारांचें जुंवन । गरती म्हणवून लाविती वदन । परदार पडलें ते नेणतो
लून । नारिजन्मा येऊनियां ॥ २७ ॥

सुंदर मनुष्यासारिलें वदन । त्यांत धूष घालणें कवण कारण । परमात्म्याचें उच्चारण ।
अभागी न करिती ॥ २८ ॥

कोरळ्याच चपडितां अरिष । बान न होयच तृप्ति । तैसे जन विषयांचे संगती । वयासू
ओदीत असे ॥ २९ ॥

उदरांत कळमळीन येते घेरी । दुर्गंध उठे मुलापितरी । नेत्र मंद होती अविचारी । कंदर्प
नासोनियां ॥ ३० ॥

कोण्डी विषय लाभिक नाही । द्रव्य बेंचून सकलें पाही । मानापमाना नसोनी कांही । आदर
न पावताती ॥ ३१ ॥

हे शेलिलो परमार्थवचन । वित होईल तें आचरा आचरण । रोख महामद करसुत
जोडोन । जोत्यास विनविली ॥३२॥^१

From the above extract of 32 stanzas we get the following information about the use of *tobacco* in the 17th century in the *Mahārāṣṭra* :—

(1) The habit of smoking *tobacco* had become current in all ranks of society.

(2) The use of *tobacco* was not confined only to men but to women also (Stanza 26).

(3) The evil effects of *tobacco* are noted by Shaikh Mahomad (st. 30).

(4) *Tobacco* was not viewed with favour in religious circles to which Shaikh Mahomad belonged.

(5) Shaikh Mahomad condemns vigorously the habit of smoking *tobacco* and exhorts people to adopt a spiritual mode of life.

(6) The above extract contains references to —

- (i) तमाकू — *tobacco*
- (ii) हुकशी — *Hookah*
- (iii) चिल्लो — (Earthen) *tobacco* pipe.

(7) The same *Hookah* or *tobacco* pipe was used by men and women of different castes without any sense of cleanliness. Even the Brahmins¹ were addicted to its use.

The Maratha saint Tukārāma (A. D. 1608—1650 March) also condemns the use of *tobacco* in the following extract :—

“देते संत ज्ञाते कळी । तोंडो तमाकूचो नळी ॥१॥
स्नान संध्या बुद्धविली । पुढें भांग बोदविली ॥२॥
मांगभुक्षा हें साधन । पची पडे मद्यपान ॥३॥
हुका मद्यो श्रवणे संग । तेथें कैचा पांडुरंग ॥४॥”

(See *Tukārāma Gāthā* published by Bombay Govt. Abhangā No. 2857).

1. Shri BENDRE has sent me the following extract about the use of *tobacco* among Brahmins condemned by Shaikh Mahomad :—

“तमाकूचा धूर इतराचा योग्य ।
हिज पोडो लाळ । धुरका मागे ॥ १ ॥”

(See शेख महमद मठ संमद — शेख महमद काव्मस्तख, बारी नं. १, क. ४)

St. Tukarama condemns the use of tobacco, *bhang* (hemp) and the drinking habit (*madyapana*) in the above song.

In the *Caturtha-Sammelan-Vyatta* (Śaka 1838 = 1916) of the Bhārata-Irīhāsa-Saṁśhodhak Mandal, Poona, the Maratha Historian V. K. RAJAWADE has published an article on "*Damaji Panta and Vithya Mahar* (pp. 53-67). In this article RAJAWADE reproduces a Marathi document (*Mahajar*) about which we are told that the original document was written during the days of Bedar empire. The document was revised in Hijari era 1051 = Śaka 1563 = A. D. 1641. The document reproduced by RAJAWADE is a copy of the revised copy of A. D. 1641. This second copy of the original with its revision was made about 100 years before 1916 i. e. about A. D. 1816. At the end of this copy there is reference to ELPHINSTONE (*अलफिन्स्टोन*) at Poona. This copy mentions some products and crops of the Maratha country as follows :—

Page 58—(1) गहू—Wheat	(20) तंबाकू—Tobacco
(2) हरभरे—Gram (Cicer)	(p. 59)
(3) लखल—Garlic	(21) छुपारी—Betel-nuts
(4) झाले—Ginger	(p. 59)
(5) बटा	(22) पाणै—Betel-leaves
(6) नागली	(p. 59)
(7) भिरच्या—Chillies	(23) तोळ—Sesamum
(8) मुग	(24) साबै
(9) काहारले	(25) राळे
(10) हुंजा	(26) बरया
(11) खल गहू	(27) कापूस—Cotton
(12) जोरी—Jawar	(28) बाजरी
(Sorghum)	(29) सैगा मुईमुगाचे—Ground-nuts
(13) हळद—Turmeric	Page 60—(30) जांब
(14) तांदुल—Rice	(31) नारेड—Coconuts
(15) बंदे	(32) केळे—Plantains
(16) साठु	Page 61—(33) गूळ
(17) लास	(34) काकरो
(18) जवत	(35) हुरवा
(19) करली	

We specially note in the above list the mention of Tobacco (No. 20) and *Chillies* (No. 7) introduced into India after about A. D. 1550. The reference to *Ground-nuts* (No. 29) is also important. The *Ground-nuts* (*मुईमुगाच्या सैगा*) are also referred to in a document of A. D. 1813 (see p. 135 of (*पेशवाईच्या साक्षीत* by N. G. CHAPEKAR, Poona, 1937).

My friend Shri V. S. BENDRE has drawn my attention to the following references to tobacco in Marathi records :—

Expenditure on the articles and tobacco etc., supplied to Samsher Bahadar (लेखांक No. 52—स ग. जोशीलेख—p. 34 of B. I. S. M. Quarterly Poona, Vol. 35, Nos. 1-2—April-July 1954—B. I. S. Mandal, *Svitya Granthamala* No. 67) mentions the following items :—

23rd May 1759 — “गुरगुढीची नेच्याची तोटी ”

25th August 1759 — “गुलाबपाणी ” rose-water

“गुराहू ” —tobacco

24th October 1759 — “पिलोय ” —earthen tobacco-pipe

— “हका —tobacco-pipe

15th November 1759 — सम्राहू (tobacco) for Madansing

Samsher Bahadar (A.D. 1734-1761) was the illegitimate son of Peshwa Bajirao I. His mother was *Mastani*, the Muslim mistress of this Peshwa. Madansing was the illegitimate son of the Maratha King Sambhaji, the son of Shivaji the Great. He was in confinement for 30 years with the Moghul emperor. He was released on 23rd February 1719 (See pages 795 and 597 of the *Madhyayugina Charitra Kosa* by S. CHITRAVA SASTRI, Poona, 1937).

It appears from the foregoing references that the use of tobacco had become current in royal circles during the Peshwa period.

47. A Reference to Tobacco in the Poems of
Senā Nhāvi and its Bearing on his Date
(Later Than c. A. D. 1550)*

Recently I published two papers¹ on the history of Tobacco in India and outside. One of these papers records references to Tobacco in Marathi literature and documents. All these references are later than A. D. 1600. No references to Tobacco earlier than c. A. D. 1590 have yet been found by me. I have been asking for such references from scholars who have closely studied Marathi records and literature. One of these scholars, Shri. V. S. Bendre who has already helped me in my present inquiry, reported to me the following reference to Tobacco from the *Gāthas* of the Mahārāṣṭra Saint, SENĀ NHĀVI :—

Gāthā No. 42 on pp. 161—162 of *Gāthapāñcaka*, edited by Tryambak Hari Avate, Poona, Śaka 1831 (A. D. 1909)

“ ४२. वैशोनि कीर्तनांत । गोष्टी संगतो निमित्त ॥१॥
दुष्ट अथम तो करा । येथुनियां दूर करा ॥२॥
तमाखू ओढुनि सोबी धूर । दुष्ट बुद्धि दुराचार ॥३॥
पान खाय कीर्तनांत । स्वरि विटाळणीने पोत ॥४॥
त्याची संगति जयास । सेना मध्ये नर्कवास ॥५॥”

In the above song Senā Nhāvi condemns the smoking of तमाखू (Tobacco) and the chewing of betel leaf (पान) at devotional meetings. This condemnation is similar to that by another Mahārāṣṭra Saint Shaikh Mahomad in his work, “*Yogasangrama*” (c. A. D. 1645) as also that by Saint Tukārāma (A. D. 1608-1649). Now let us record the views of Marathi scholars about the date of Senā Nhāvi.

(1) Shri S. Chittrav Shastri in his *Madhyayugina Caritrakosa* (Poona, 1937), p. 814, gives some information about Senā, according to which his date is “about A. D. 1448.” As tobacco was introduced into India about A. D. 1600 Senā's reference to tobacco in the extract quoted above would lead us to conclude that his date is later than c. A. D. 1575 and consequently the date recorded by Shri Chittrav viz. “c. A. D. 1448”

* *Poona Orientalist*, Vol. XXII, Nos. 1-2, pp. 37-39.

1. (i) “References to Tobacco in Marathi Literature and Records between A.D. 1600 and 1900” *Poona Orientalist*, Vol. XX, pp. 20-30 and (ii) “The History of Tobacco in India and Europe-between A.D. 1500 and 1900”—*Bharatiya Vidya*, Vol. XVI, No. 1, pp. 65-74.

will have to be rejected. If, however, we regard "c. A. D. 1448" as the correct date for Senā we are constrained to regard his reference to tobacco as spurious. I have, therefore, to request Marathi scholars to give their decision on this point after proper evaluation of the data now existing for fixing Senā's date.

(2) Prof. S. G. Tulpule has made some remarks on Senā Nḥavī in his Supplement to the 4th edition [1951] of the *Maharāṣṭra Śārasvata* by V. L. Bhavē [pp. 912-913]. The following points from these remarks may be noted here :—

- (i) Senā belongs to the group of saint poets to which Jñāneśvara belongs.
- (ii) He was a barber by caste and was in the service of a king of Bandogad near Jabalpur.
- (iii) His mother-tongue was Hindi but being a devotee of god Viṭhoba of Pandharpur he knew Marathi very well.
- (iv) There are many followers of Senā in Northern India from Panjab to Rajputana.
- (v) The "*Granth Sāheb*" of the Sikhs contains a song of Senā.
- (vi) According to Shri S. P. Joshi (pp. 25-26 of his book "पञ्चावलीस नमस्ते") Senā did not originally belong to Maharāṣṭra. It is however, surprising that all the extant poems of Senā (about 150 *abhangas*) are in Marathi.
- (vii) He died on "Śrāvṇa vadya dvadasi" but the year to which this *tithi* belongs is not known.
- (viii) According to Shri S. P. Joshi and Shri V. L. Bhavē Senā's date is not as old as Jñāneśvara but he is somewhat later.

It will be seen from the views regarding Senā's date quoted above that no sure criterion has been found by Marathi scholars for fixing his date even within reasonable limits. Under these circumstances the reference to Tobacco in Senā's poems recorded in this note, if genuine, would enable us to conclude that he is later than c. A.D. 1550. This view would confirm the views expressed by Shri Joshi and Shri Bhavē that Senā is somewhat later than Jñāneśvara (13th Century, though they don't give us the exact later terminus to Senā's date).

48. The History of Tobacco in India and Europe Between A. D. 1500 and 1800*

No complete history of Tobacco in India has been published so far. I have collected some references about this history during the last fifteen years. Though my search for these references is not yet complete, I have thought it advisable to publish the references so far collected with a view to clarifying my investigation to some extent.

In the *Encyclopædia Britannica* (14th Edition, 1929) Vol. 22 we find only the following note on the history of Tobacco :—
Page 260 —

"*Historical* :—The tobacco plant was brought to Europe in 1558 by Francisco Fernandes, who had been sent by Philip II of Spain to investigate the products of Mexico. Jean Nicot, the French Ambassador to Portugal sent seeds of the plant to the Queen, Catherine de' Medici. The services rendered by Nicot in spreading a knowledge of the herb have been commemorated in the scientific name of the genus *Nicotiana*. At first almost miraculous healing powers were attributed to the plant, and it was designated "*herba panacea*", "*herba santa*", *Sana Sancta Indorum*. "Divine tobacco" it is called by Spencer, and "our holy herb nicotian" by William Lilly.

While the plant came to Europe through Spain, its use for smoking purposes spread to the continent from England. Ralph Lane, the first Governor of Virginia, and Sir Francis Drake, brought to the notice of Sir Walter Raleigh the habit of smoking tobacco. Lane is credited with having been the first English smoker and through the influence and example of the illustrious Raleigh "Who took a pipe of tobacco a little before he went to the scaffold" the habit became rooted among Elizabethan countries. During the 17th century the indulgence in tobacco spread with marvellous rapidity through all nations." In the article on Tobacco in the *Hobson-Jobson* (by Yule and Burnell, London, 1903) we get the following information about Tobacco in general and about its introduction into India and the East :—

Pages 924-926 —

c. A. D. 1550 —

Tobacco is mentioned in Burton's *Arabian Nights*, vii, 210 along with meat and vegetables but this is the insertion of

* *Bharatiya Vidya*, Vol. XVI, No. 1, pp. 65-74.

some scribe according to the editors of the Hobson-Jobson.

1542-1556 —

Girolamo Benzoni in his *Travels* (translated by W. H. Smyth, Hak Soc. 1857, p. 81) states : —

"going through the provinces of Guatemala and Nicaragua I have entered the house of an Indian, who had taken this herb (tobacco), which in the Mexican language is called tobacco and immediately perceived the sharp fetid smell of this truly diabolical and stinking smoke, I was obliged to go away in haste and seek some other place"

J. T. Platt in his *Dictionary of Urdu, Classical Hindi and English*, London, 1884 states : — "The word tobacco is from the language of Hayti and meant first the pipe, secondly the plant, thirdly the sleep which followed its use"

1558 —

Tabaccam and *Tabaccane* mentioned (*Gul. Camdeni, Annal. Reyum. Anglicanum, regn. Elizabetha*, ed. 1717, ii, 449)

1592 —

"divine Tobacco"

— *The Faerie Queene*, III, v. 32

1597 —

Earl of Essex at Villa Franca uses tobacco — *Commentaries of Sir Francis Vere*, p. 62

1598 —

"this roguish tobacco four died with taking of it its little better than rats-bane or rosaker"

— *Every man in his humour*, iii, 2.

1604 —

"now Impost of 6s. 8d.. and the custom of 2d. per pound on tobacco"

— *Calendar of State Papers, Domestic*,
James I, p. 159.

1604-1605 —

Visit of Asad Beg (Akbar's Ambassador) to the Bijapur Court. Asad Beg states : — "In Bijapur I had found some tobacco. Never having seen the like in India, I brought some with me and prepared a handsome pipe

of jewel work. His Majesty (Akbar) was enjoying himself after receiving my presents, and asking me how I had collected so many strange things in so short a time. When his eye fell upon the tray with the pipe and its appurtenances he expressed great surprise and examined the tobacco, which was made up in pipefuls; he inquired what it was and where I got it. The Nawab Khan-i-'Azam replied: 'This is tobacco, which is well-known in Mecca and Medina, and this doctor has brought it as a medicine for your Majesty.' His Majesty looked at it and ordered me to prepare and take him a pipe-ful. He began to smoke it, when his physician approached and forbade his doing so" (omitting much that is curious). "As I had brought a large supply of tobacco and pipes I sent some to several of the nobles, while others sent to ask for some; indeed all, without exception, wanted some, and the practice was introduced. After that the merchants began to sell it, so the custom of smoking spread rapidly."

— *Asad Beg in Elliot*, vi, 165-167.

1610 —

"The Turks.....also delight in tobacco, they take it through reeds that have joyned unto them great heads of wood to containe it. I doubt not but lately taught them, by the English:..... no question but it would prove a principall commodity. Nevertheless they will take it in corners, and are so ignorant therein, that that which in England is not saleable, doth passe here amongst them for most excellent."

— *Sandys, Journey*, 66.

1615 —

"*tabacco*"

— *P. della Valle*, i, 76.

1616 —

"miraculous omnipotence of our strong tasted Tobacco"
(virtues of tobacco described)

— *K. James I., Counterblast to Tobacco in Works*, pp. 219-220

1617 —

"As the smoking of tobacco (*tambaku*) had taken very bad effect upon the health and mind of many persons, I ordered that no one should practice the habit. My brother Shah Abbas, also being aware of its evil effects had issued a

command against the use of it in Irān. But Khūn-i-'Alam was so much addicted to smoking, that he could not abstain from it, and often smoked."

—*Memoirs of Jahāngir* Elliot V. 851 (Blochman renders this passage *Indian Anti.* i, 164.)

1623 —

"Tobacco"

—*Bacon H. Vitae et Mortis* in *B. Montague's* ed. X, 189.

17th Century —

long extract from a Persian author. Some points in this extract are worthy of noting :—

- (1) Tobacco, "an European plant".
- (2) Its cultivation became speedily universal.
- (3) It "rewarded the cultivator far beyond every other article of husbandry."
- (4) Smoking of tobacco pervaded all ranks and classes during the reign of Shah Jahan (A.D. 1628-1658). Tobacco was often preferred over other necessities of life.
- (5) References to "Chillum" and "Hookah."

c. 1760 —

"*Tambakū*. It is known from the *Maāsir-i-Rāhlmi* that the tobacco came from Europe to the Dakhin, and from the Dakhin to Upper India during the reign of Akbar Shāh (1556-1605), since which time it has been in general use".

— *Bahār-i-'Ajam* quoted by Blochmann in *Ind. Anti.* i, 164.

1878 —

"It appears from Miss Bird's *Japan* that tobacco was not cultivated in the country till 1605. In 1612 and 1615 the Shogun prohibited both culture and use of *tabako*" — See the work, i, 276-77 (According to Mr. Chamberlain (*Things Japanese*, 3rd ed. p. 402) by 1651 the law was so far relaxed that smoking was permitted, but only out-of-door).

John Fryer in his *Travels* (A.D. 1672-1681) in East India and Persia (Hak. Society, London, 1909, Vol. I) refers to tobacco in the following extracts :—

Vol. I, p. 43 —

Speaking of the Island of St. Iago, one of the Cape Verde Islands Fryer states :—

"They invite us with an Hubble-bubble (hookah) (so called from the noise it makes) a long reed as brown as a Nut with use, inserted the body of a Cocoe-shell filled with water, and a nasty Bole just pressing the water, they ram Tobacco into it uncut, out of which we may suck as long as we please etc."

Vol. I, p. 110 — Speaking of the town of "Maderas" Fryer observes :—

The natives chew it (betel leaf with Chinam (Chunam) and Arach (areca-nut)..... If swallowed it inebriates as much as tobacco"

Vol. I, p. 88— Speaking of the Moors in India Fryer remarks :—

"Their Chiefest Delight and Pride is to be seen smoking tobacco cross-legg'd in a great chair at their doors, out of a long Brass Pipe adapted to a large Crystal Hubble-bubble fixed in a Brass Frame, their Menial Servants surrounding them"

Hookka appears to have been used as a general presentation article in the 17th century. In a list of things to be presented to the Faujdar of Hugli, dated 3rd April 1682 we find "one Hoocha, one pigdan (spittoon)" [See *Factory Record, Hugli* No. 3 quoted in foot-note 2 on p. 96 of Thomas Bowrey's account of *Countries round the Bay of Bengal* (1666-1679) Hak. Soc., Cambridge, 1905].

Bernier in his *Travels in the Moghul Empire* (A.D. 1656-1668) ed. by Archibald Constable, London, 1891, refers to dealers in tobacco in Bengal as follows :—

Page 441—

"The masters of vessels take care that their crews drink less punch, nor do they permit them so frequently to visit the Indian women or the dealers in arac and tobacco."

It is clear from this reference that tobacco was an article of trade in the Bengal market between 1656 and 1668, the period of Bernier's *Travels* in India. We cannot say if this tobacco was imported from outside or was a product of Indian Cultivation.¹ A. K. Nairne in his *The Flowering plants*

1. The Ministry of Information and Broadcasting (Film Division) prepared in 1950 a documentary film "*My Lady Nicotine*" (See p. 21 of their *Catalogue—1949 to 1953*). We are informed in this *Catalogue* that India is the third largest grower of tobacco in the world. The tobacco industry employs over half a million workers and brings a large revenue into Indian exchequer through internal consumption and export.

of *Western India*, Bombay, 1894, p. 210, refers to the cultivation of "Several species of *Nicotiana*, tobacco which Lamb calls "plant divine of rarest virtue". Such species are cultivated also "in England as garden and conservatory plants."

John Borthwick Gilchrist published his "*Dictionary, English and Hindoostanee*" in 1810. In the 2nd edition of this *Dictionary* published in London, 1825, we find the following information about tobacco :

Vol. I, P. 658 —

"tobacco, tumbakoo, bhelsa, gal, Sendhee, Soortee from Soorat (Surat) whence it was first introduced into Hindoostan, and Bhelsa is the name of a village where the best tobacco is produced, (bad) phuskoo, (cut) woolfa, (house) bhiinde khanu—*tabacconist*, tumbakoogur."

The *Gazetteer of the Poona District* [*Bombay Gazetteer*, Vol. XX (revised edition, Bombay, 1954)] p. 202, states that tobacco is grown mostly in the villages of Junnar Taluka and also in Indapur, Purandar, Dhond, Sirur, Ambegaun, Poona City and Baramati. We are further informed that "Tobacco cultivation was introduced before 1841 by the Government who imported Syrian tobacco seeds into this district." In the late days of the 19th century Poona was the largest Snuff and tobacco market in the Deccan (p. 361). Part I of the *Poona Gazetteer* deals with *Medicinal Plants*. On p. 153 there is a note on tobacco plant (*Nicotiana Tabacum* Linn.) which gives its names, habitat, properties, uses, etc. Tobacco is extensively cultivated in upper Gujarat (Kaira Dist.) and in the area West of the Deccan and the S. M. Country (Satara and Belgaum Districts).

Francis Buchanan in his *Patna-Gaya Report*, Vol. II (1811-1812) published by the Bihar and Orissa Research Society, Patna, records the following information about tobacco¹ :—

Page 629 —

"Those who prepare the tubes used for smoking tobacco are reckoned better workmen than those in Bengal but not equal to those of Lucknow. Very few of the tubes made here are ornamented with gold and silver. Most of the tobacco is here prepared for smoking by *Modis* who retail provisions. Some tobacco is prepared as in Bhagalpur by the *Halwais*

1. Tobacco, an American plant, came to be cultivated in India rapidly after its introduction long before 1812. About potatoes Buchanan observes as follows on p. 680 of his *Report* Vol. II. "The vegetables for eating consist of potatoes sent to Benares and Beagal and of various sorts imported to Patna from the country beyond the Ganges."

(confectioners) and by those who sell *paper-bites* and a good deal by those who make this business their sole profession. Charcoal balls used in smoking are prepared by old women and inn-keepers."

In the *Baroda Gazetteer* (Bombay Gazetteer, Vol. VII, Bombay, 1883) there is a note on the cultivation of tobacco in Baroda division (p. 89). Tobacco is differently prepared for *smoking*, *chewing* and for being taken as *snuff*. If *śadāku* tobacco is to be prepared the plants are cut off at the root but if *fardā* is to be made only the leaves are clipped.

In the *Hibbert Journal* for July, 1955 there is an article on '*Tobacco as a Sacred Plant*' by Lewis Spence (pp. 394-399). Some points in this article are noted below :—

- (1) Not a single instance of native testimony about the evil results of tobacco has been noticed by Spence.
- (2) The Red Man had employed tobacco for centuries as incense to be burnt before the images of his gods. He also employed it against bodily inflammations.
- (3) The Mexican priesthood regarded tobacco as a sacred substance.
- (4) In 1907 Walter Fewkes excavated some ceremonial rooms at Casa Grande in Arizona with hundreds of tubes used for smoking tobacco.
- (5) In Mexican manuscript paintings many of the gods are represented with the tobacco pouch worn by the priests.
- (6) The Mexican priests were in the *habit of chewing tobacco* for inducing prophetic visions.
- (7) Thomas Hariot, servant to Sir Walter Raleigh, in his *Brief and True Report of the New Found Land of Virginia* composed in A. D. 1587 refers to the superstitious use of tobacco by the natives of that province.
- (8) The North American Tribes attributed magical protective efficacy to tobacco.
- (9) It is possible to suppose that a large and important body of belief associated with a definite cult of the tobacco must have existed among the American tribes.

The Annual Report of the Patna Museum (1942-1952) published in 1954 gives a Catalogue of objects added to the museum's Art Section (Appendix E—pages 120-216). Among these objects we find the following of special interest for our present paper :—

Page 120 —No. 824—

"Painting depicting a man smoking "Gargara" (hukka) and a male attendant standing before him."

Page 131 — No. 891 —

"Painting on paper depicting a man making "Hukkas" (hubble bubble:) from coconut shells. A customer bargaining for a "Hukka". Patna School. 19th Century A. D."

Page 133 — No. 901 —

"Painting on paper depicting a tobacco dealer weighing tobacco (for smoking) on a scale. Two 'gharas' (Jars) probably containing tobacco covered by a red cloth, and a bamboo basket containing 'Tikya' (charcoal cake for igniting tobacco) and three 'Hukkas' (hubble-bubbles) on the platform. Patna School. 19th Century A. D.

Page 151 — No. 1023 —

"Painting on paper of a nobleman smoking *Hukka* and enjoying dance and music performed by a party of five women. Seven other persons are also in the group. Jaipur Qalam. 19th Century A. D.

Page 152 — No. 1024 —

"Painting on paper of a lady seated on 'Takht' and smoking *Hukka* Kangra School. 19th Century A. D.

Page 141 — No. 958 (12) —

"Painting on paper depicting a soldier with a gun on his shoulder and smoking *Hukka*. Southern India School. 19th Century A. D.

Page 152 — No. 1026 —

"Painting ... nobleman in company of a lady smoking *Hukka*. Pahari School. Late 18th Century A. D." ♀

Page 153 — No. 1034 —

Paintinglady resting on a cushion. *Hukka* and *Spittoon* near her. Delhi School. 19th Century A. D."

Page 163 — No. 1111 —

"Painting Nur Jahan Begum.....*Hukka* in the left hand"..... Delhi School. 19th Century A. D."

Page 163 — No. 1099 —

"Painting.....Nur Jahan with *Hukka*... Delhi School. 19th Century A. D."

Page 169 — No. 1129(3)

Painting on ivory—Muhammad Mirza Fakhru holding *Hukka* in his right hand. (4) *Ivory Painting* — Mohammad Bahadur Shah II holding *Hukka* in his right hand

Page 169 — No. 1130(3)

Ivory painting — Akbar Shah II with *Hukka* in his right hand.

Page 170 —No. 1134—

"*Ivory painting*—Nurjahan with *Hukka* in her left hand. Delhi School. 19th Century A.D."

Page 173 —No. 1164—

Ivory painting—Akbar II, son of Emperor Shah Alam holding *Hukka* in his left hand. Delhi School. 19th Century A.D.

Page 174 —No. 1165—

Ivory painting — Bahadur Shah II with *Hukka* in his left hand. Delhi School. 19th Century A.D.

Page 177 —No. 1196—

Ivory painting — a king holding *Hukka* by his right hand... Delhi School ... 19th Century A.D.
No. 1201—

Ivory painting — Nobleman holding *Hukka* in his left hand. Delhi School...19th Century A.D.

Page 178 —No. 1203—

Ivory painting—Nobleman with *Hukka* in Company of a lady... Delhi School... 19th Century A.D.
No. 1206—

Ivory painting — Nobleman with *Hukka*—two inscriptions , mentioning Raja Balawand Singh Bahadur of Banaras... Painter's name Lala Mihar Chand is recorded...Delhi School.. 19th Century A D.

Page 179 —No. 1207—

Ivory painting — Nobleman with *Hukka* — Date "1227 Fasli" (= A D. 1820) recorded. Delhi School.

Page 180 —No. 1214—

Painting on paper — lady with *Hukka*. Delhi School.

Pages 181-182 — Nos. 1233-1245—

Cut glass *Hukkas* (No. 12—Blue glass, No. 1244—Red glass).

Page 182 —Nos. 1250 and 1251—

Marble Hukkas.

—No. 1252 and 1253—

Black Stone Hukkas.

Page 188 — No. 1309—

Silver enamelled *Hukka* with copper base.

—No. 1310—

Silver enamelled base of the above *Hukka*. 17th Century A.D.

Page 189 — *Bidri Hukkas* (Nos. 1386-1388 ; 1393-1398 ; 1400-1402).

Page 207 — No. 1597—

Painting on mica of a bearded man holding *Hukka* (Patna Style of painting).

In the *Account of Countries round the Bay of Bengal* (A.D. 1669 to 1679) Thomas Bowrey has given us pictures of two different types of *Hookas* with pipes for smoking tobacco (see plate VIII facing p. 104 of this Account published by the Hakluyt Society, Cambridge, 1905). These are the only datable pictures of *hookas* in use in India about A.D. 1670.

My friend Prof. Dr. E. Sluszkiewicz of Warsaw (Poland) informs me in his letter of 30th March 1956 that tobacco was introduced into Poland in A.D. 1590 by Uchanski from Constantinople in Turkey, where he was then Poland's envoy.

Another friend, Dr. Vittore Pisani of Milan (Italy) writes as follows about the introduction of Tobacco in Italy in his letter of 12th February 1956 :—

"As to the introduction of Tobacco in Italy I can only say that this event might have taken place about A.D. 1560. Some years before that seeds had been taken to Spain and Portugal and in 1560 the famous Jean Nicot sent them to King Francois II and to Caterina de' Medici, the French Sovereigns. As Caterina came from Florence and in her court Italians were very numerous, it is possible that through them the plant became instantly known in Italy, where tobacco was named after the Cardinal Nicolo Tornabuoni that was the nuncio at the French Court and probably first introduced in Italy the plant that received his name."

49. History of the Art of Grafting Plants

(Between c. 500 B.C. and A.D. 1800)*

In the *Encyclopaedia Britannica* (1929, Vol. 10, pp. 598-600) there is an article on *Grafting in Animals* which begins with the following remarks :—

'Every gardener is well acquainted with grafting in plants. But it is less well known that pieces of animals too may be joined in permanent union. Grafting in animals is practised mainly for scientific purposes or for the restoration of weakened or lost parts etc.'

In the article on *Horticulture* (*Enc. Brit.*, Vol. 11, 774 ff) we are told that the term *Horticulture* is derived from the Latin *hortus*—a garden and *Culture*—cultivation. *Horticulture* originally meant the cultivation of a garden in contrast to agriculture or the cultivation of fields. In the remarks on *Plant Raising* in this article we are informed that 'some plants give their best when grown on roots which are not their own... This is a very convenient method of increasing plants, for the stocks may be grown and got ready to receive the particular variety, which is joined on by *grafting* or budding. *Grafting* is a spring operation, etc.' In the above article I don't find any reference to the history of *grafting*.

In the article on *Chimaera* (*Ency. Brit.*, Vol. 5, p. 502) we are informed that this term is used in botany to apply to certain types of plants formerly known as 'graft-hybrids'. These *Chimaeras* have been known in gardens for some time but their nature was understood in 1907 by H. Winker, who produced many *Chimaeras* by *cleft-grafting* of main shoots.

In this article also I don't find any history of the art of grafting practised by nations of antiquity.

In his Marathi book¹ on horticulture Prof. H. P. Paranjpe, retired Govt. Horticulturist, makes some remarks on the *history of grafting* (फुलवाचा विधान) which are pertinent to the present inquiry. I note below some points from these remarks :—

- (1) It seems that the art of grafting may not have been current in ancient India.
- (2) There is no doubt that the Portuguese first introduced this art in India.

* *Indian Culture*, Vol. XIII, No. 1, pp. 25-32.
1. *Phaljadanka Bag*, Poona, 1930, pp. 42-43.

- (3) Under the rule of the Marathas and that of the Bijapur kings much attention was paid to *mango* cultivation and several varieties of *mango* were cultivated but there is no evidence to prove that *grafting* was practised in this connection.
- (4) Rao Bahadur C. V. Vaidya in his work महाभारताचा उपसंहार (p. 349) quotes the following line from the *Dronaparva* of the *Mahabharata* :—

“वृक्षारामो यथा भग्नः पंचवर्षः फलोत्पन्नः ।”

This line refers to the destruction of a mango garden, in which the trees five years old, are bearing fruit. According to R. B. Vaidya this simile brings to our mind the idea of gardens of small grafted mango trees bearing fruit, now current. Prof. Paranjpe states that it would be too bold a presumption to conclude from the above reference that the art of grafting was current in *Mahabharata* times.

- (5) Ordinary seed-grown mango trees, if properly cultivated, are capable of bearing fruit within five or six years. It is a matter for surprise how the art of grafting disappeared from India, a preponderantly agricultural country, if it was once known. It is also surprising why this art, if it existed, did not spread and further why we should not find *Deśī* or *Sanskrit* words for the terms *बुफलम* and *ट* now in vogue.

The mango fruit and tree have been very popular in India and any art which can make this tree bear fruit early would be welcome to all. If such an art was once known it seems impossible that anything could have made it extinct.

- (6) There is a tradition at Ratnagiri that Mount Stuart Elphinstone (A.D. 1779-1859) planted a grafted mango tree at this place at the close of the Peshwa period. This tree is still pointed out by the local people. Though it is a very old tree we cannot say how far this tradition is true to history.

It is clear from the above remarks that the art of grafting was unknown in India before the Portuguese advent in India (A.D. 1498) according to Prof. Paranjpe.

Maharaja Daulatrao Scindia of Gwalior (A.D. 1780-1827) was a great lover of gardens and gardening. He laid out the famous *Phool Bag* of Gwalior. Siva Kavi, a court-poet of this Maharaja, composed a *Hindi*

work called *Bag Vilas*¹ in which he refers to the four types of roses and many other fruit and flower trees worth planting in a model garden. In the following lines he refers to the कलम of roses (गुलाब) :—

“जल दे झाड़िनमासमे ; पुनि मुन लेह जवाब ।
 एस मास मे कलम कर लीको घरगुलाब ॥
 आवे कली गुलाब मे, तबको मुनो विधान ।
 कृष्णपद मरि माघ मे, नीर न दीजे ज्ञान ॥”

The reference to the कलम of roses in the month of Pasa or Pauṣa (January-February) is worth noting. I leave it to our horticulturists to say if the term कलम² here refers to the grafting of roses or merely ordinary cutting taken for transplantation.

In the *Shorter Oxford Dictionary* we get the following information about the term GRAFT and its derivations :—

GRAFT—1483 (a modification of *Graff*)—the nature of —t is uncertain
 = a shoot inserted in a slit made in another stock
 =(1626)—to insert a graft or grafts
 =(1624)—to produce (fruits) by grafting.
 GRAFTER—(1616) one who grafts trees.
 =(1884) a kind of hand-saw used in grafting.

Graff—arch. ME (OF. *grafe*, *greffe* (mod. *greffe*), late L. *graphium*, etc.) The usages of the term *Graft* recorded above begin from A.D. 1483, i.e. 15 years earlier than the Portuguese advent in India (A.D. 1498). We must record the usages of the term कलम in the sense of ‘grafting’ in Hindi literature, if any, between, say, A.D. 1500 and 1800.

In the article on *Mango* in the *Hobson-Jobson* (Yule and Burnell, London, 1903, pp. 553-555) we find a record of references to *Mango* by foreigners from c. A.D. 1328 to 1883. In these references *Goa mangoes* are praised as follows :—

1. My friend Subbedar B.R. Shalerao of Gwalior has published an article on *Bag Vilas*. I am quoting from an offprint of this article kindly supplied by him. (See also my article on *Manufacture of Rose-water*, etc. in *New Indian Antiquary*, Vol. VII, pp. 180-183.)

2. In the Marathi *Guldakora* by Dote-Karve, Vol. II (1933) pp. 621-622, the term कलम and its several meanings are recorded. Among these meanings we find कलम explained as the art of grafting. Six kinds of grafting recorded here are :—

(1) किल्लिचे कलम, (2) दावरीचे कलम, (3) दावारे कलम, (4) कुटीचे कलम, (5) गुठीचे कलम, (6) विटकलम—No usages of the term कलम have been recorded in this dictionary. Hence it is difficult to say when the term कलम came to be applied to the art of grafting.

A.D. 1663 — *Bernter* in his *Travels* states that the best mangoes 'come from *Bengale*, *Golkunda* and *Goa* and these are indeed excellent.'

A.D. 1673 — *Fryer* refers to *Goa mangoes* as follows : —

'When ripe the apples of the *Hesperides* are but Fables to them ; for taste the *Nectarine*, *Peach* and *Apricot* fall short.'

A.D. 1727 — *A. Hamilton* praises *Goa mangoes* :

'The *Goa mango* is reckoned the largest and most delicious to the taste of any in the world and I may add, the wholesomest and best tasted of any fruit in the world.'

Evidently the above references to *Goa mangoes* are to the *grafted varieties*, which were produced by the care and skill of the *Jesuits* (see *Annes Maritimos*, ii, 270) we must collect and record references to *Goa mangoes*, in Indian sources between A.D. 1550 and, say, 1800. I propose to record in a special paper the history of grafted mangoes in India. In the present paper I am concerned with the history of the art of grafting, which has revolutionised horticulture in all countries of the world.

Though the *Jesuits* of *Goa* practised the art of grafting on Indian mango trees and produced its best varieties they were not the inventors of this art. In his chapter on the 'Spread of the Mohammedan Power', *Davies*¹ speaks of the contribution of the Mohammedans to science and culture. In this connection he quotes an extract from *Europe in the Middle Ages* (*Thatcher and Schwill*) published by *Murray*. In this extract, a reference is made to the art of *grafting* practised by the Mohammedans as follows:—

'They (Mohammedans) practised farming in a scientific way. They had good systems of irrigation. They knew the value of irrigation. They knew the value of fertilizers. They fitted their crops to the quality of the ground. They excelled in horticulture. They knew how to graft and were able to produce some new varieties of fruits and flowers. They introduced into the West many trees and plants from the East.'

1. Vide p. 286 of *An Outline of the History of the World* by H. A. Davies, Oxford University Press, London, 1937. The Mohammedan or Arabic civilization during the five centuries following the death of Mohammed evolved a civilization much superior to anything that existed in Europe at the time. This civilization was greatly indebted to the civilization of *Greece*, *Persia* and perhaps *India* as well ; but it added something of its own to what it received from these sources The conquests of the Turks were fatal to this civilization Spain was beyond the orbit of Turkish influence and the Moorish civilization in Spain maintained its vigour and power for centuries longer.

If the above remarks are correct the history of the art of *grafting* goes back to the period of Arabic or Mohammedan civilization, say between A.D. 650 and 1150 and as this civilization was indebted to Greece, Persia and perhaps India as well, we have to trace references to *grafting* in all these sources. For this purpose I note below the following information about *grafting* gathered by me from *A Short History of Plant Sciences* by Howard S. Reed, Waltham, Mass., U.S.A., 1942 :—

Page 35—*Theophrastus* of Eresus was the founder of the botanical science. He was born c. 371 B.C. He was a disciple of Aristotle who had the highest esteem for this disciple, Aristotle in his Will gave Theophrastus his garden and library. Theophrastus took Aristotle's son under his care after his father's death. Then, wrote 200 treatises of which two botanical works—(1) *The History of Plants* and (2) *The Causes of Plants*—have survived. His knowledge of plants included many plants brought from Asia by Alexander's followers.

Prof. Reed quotes Green's *Landmarks of Botanical History* (Part I — prior to 1562 A.D.), Smithsonian Institution, 1909 :—

'He (Theo.) wrote from the midst of an advanced civilization ... a time when many cultivated varieties of all sorts of things had been derived through cultivation and when it was perfectly well known that such improved varieties cannot be depended on to come true to seed, but may be preserved, and the stock of each increased by division of roots, by cuttings, and by *grafting*.'

P. 38 — *De Causis Plantarum* (The Causes of Plants) of Theophrastus contains less of scientific interest than the *Historia* (The History of Plants). ... The subjects discussed are :—

- (1) propagation of plants by seeds, *grafting* and *budding*,
- (2) the effects of weather and soil,
- (3) the arts of cultivation,
- (4) growth and periodicity in plants,
- (5) heat and cold in plants.

P. 39 — Theo. studied under Plato and Aristotle and witnessed the careers of Philip and Alexander of Macedon and knew the latter personally. He died about 285 B.C. having remarked 'We die just when we are beginning to live.'

P. 91 — *Edme Mariotte* (c. 1620—1684) developed research in France ... He made some very pertinent observations stating that the sap of the original trunk acquires different qualities in each *graft* as shown by the character of the fruits.

P. 116 — Picture of graftage from P. *Crescentus*, Basil, 1548.

It appears from the references to *grafting* in the works of *Theophrastus* (B.C. 371-285) that the art of *grafting* was an established feature in Greek horticulture in the fourth century B.C. We may, therefore, safely take the antiquity of grafting up to about 500 B.C.

Pliny the Elder (A.D. 23-79) was one of the most meritorious of the Roman writers. He had extraordinary capacity for work and described the way in which he continuously studied, read, or dictated to his secretaries. His *Natural History* in 37 books is a very elaborate encyclopaedia, containing a wealth of information not to be found elsewhere. He said it was compiled from some 2,000 volumes most of which have since been lost. His principal authorities were Greek. *Aristotle* and *Theophrastus* were frequently mentioned.

In view of the above information about *Pliny* recorded by Prof. Reed (*Plant Sciences*, pp. 41-43) I have begun to study *Pliny's Natural History* in its English Translation¹ by H. Rackham (Loeb Classical Library, William Heinemann, London. MCMXLV). In Book XV *Pliny* makes the following remarks about *grafting* :—

Page 327 — *Grafting*.

'XVII. This department of life has long ago arrived at its highest point, mankind having explored every possibility inasmuch as *Virgil* (Georg. II, 69) speaks of *grafting* nuts on an arbutus, apples on a plane and cherries on an elm. And nothing further can be devised — at all events it is now a long time since any new kind of fruit has been discovered. Moreover religious

1. Vol. IV (Books XII-XVI deal with vines and trees). Book XIII deals with *foreign trees* and their use in supplying scent, fruit, paper and wood. *Pliny* mentions *attar of roses*, *oil of saffron*, almond-oil, cardamom, cinnamon, *fenugreek* (Bib), oil of sesame, olive oil, *costus* (Bib), grape, palm trees, dates, plums, pistachio, figs, Egyptian gum, papyrus (discovery of paper due to the victory of Alexander, before which people wrote on palm leaves and other barks), parchment invented at Pergamum, *citrus* oil used for preserving books against moths, cotton, peacock's tail, poppy, lotus tree of Africa, pomegranate (3 kinds), glass, etc.

Book XII mentions ivory, citron, earthenware pots (with holes) in which plants were imported, *Indian trees* (ebony, banyan tree, banana, flax tree, glomer, cane-sugar from India, more esteemed, linen of India, *costus* of India, Indian nard, frankincense, cinnamon, etc.

For those who care to study the history of Indian *Materia Medica* a close knowledge of *Pliny's Natural History* is essential. We must know the history of each drug in its world perspective.

scruples do not permit us to cross all varieties by *grafting*, for instance, we must not *graft* upon a thorn, inasmuch as it is not easy to expiate thunderbolts when they have struck them, and it is declared that the same number of bolts will strike it in a single flash as the kinds of trees that have been grafted on it.

Page 359 — 'XXX. Before the victory of Lucius in the war against Mithridates, that is down to 47 B. C. there were no *Cherry* trees in Italy. Lucullus first imported them from Pontus and in 120 years they have crossed the ocean and got as far as Britain It is less than five years ago that what is called *laurel-cherry* was introduced, which has a not disagreeable bitter flavour and is produced by *grafting* a cherry on a bay-tree'.

The above extracts of the *first century A. D.* clearly prove that the art of *grafting* had reached its highest point in Rome in this century. We have seen above that Pliny quotes *Virgil*, the first of all the Roman epic poets (B. C. 70 — A. D. 19) on *grafting*. When Pliny wrote, there was a revival of intellectual energy in every field. Geographical horizons were enlarged, London was established as a Roman Settlement, *Agricola* sailed for the first time around Britain and an *ocean route of India* was opened up through the Red Sea. We have already noted above the Indian plants noted by Pliny, viz., the *banyan*, *banana*, *flax*, *pepper*, *ginger*, etc. In view of this Roman contact with India as also the earlier Graeco-Indian contact and the Greek occupation of the Panjab (between 190 B. C. and 40 A. D.) we are tempted to inquire if the fame of the art of *grafting* current in Greece and Rome between, say, 500 B. C. and 100 A. D. had reached India prior or posterior to the composition of the earliest medical treatises of *Caraka*, *Susruta* and others, which show a deep knowledge of plants¹ of medical and nutritive value. The question now arises: Did the Indians develop the art of *grafting* at any stage of their botanical history?

1. Vide pp. 152-153 of Dr. R. N. Sastore's *Life in the Gupta Age*, Bombay, 1943. Here *trees* mentioned in Gupta inscriptions are recorded as follows: A. D. 423-424 — [*कुलताल*, *बन्धूक*, *बाण*]; A. D. 473-474 — [*रोध*, *पिप्पल*, *सखली*, *नापा*, *अशोक*, *सिन्धुवार*, *ईशक*, *अतिमुक*]; A. D. 482 [*रुक*, *अमाल*]; *Kalidasa* mentions the following plants: *कोशिका*, *दुन्नाग*, *सप्तपर्णी*, *साम्बुकी*, *दूध*, *अशोक*, *सह्यार*, *ताली*, *इश*, *सप्तपर्ण*, *वारिबार*, *समो*, *अशोक*, *रयाम*, *वमाल*, *सरल*, *कटक*, *लोध*, *देवदार*, *अमलकी*, *नीप*, *साल*, *कुण्डलायुक्त*, *कर्पूर*, *हविचन्दन*, *अतिमुक*, — *trees*; *creepers* like *पिप्पल*, *सखली*, *माचरी*, *निबुल* etc.; *flowers* such as — *लोध*, *सन्तानक*, *केतकी*, *मालती*, *वकुल*, *वृषिक*, *शिरोष*, *नमो*, *कदम्ब*, *अशोक*, *सख*, *मधूक*, *पद्म*, *बन्धुजीव*.

The only evidence about the Indian knowledge of grafting so far pointed out by scholars belongs to the sixth century A.D. It is as follows :—

Dr. G. P. Majumdar in his chapter on *Plant Physiology*¹ (pp. 39-40 of *Vanaspati*, Calcutta, 1927) records the following evidence of the *Bṛhatsamhita* of Varahamihira (c. A.D. 500) :—

'Methods of plantations by cutting and graftings : In addition to the ordinary method of propagation by seeds the methods of propagation by cuttings and graftings were known from time immemorial, so much so, that the plants to which these methods can be applied are definitely named.'

The following verses from the *Bṛhatsamhita*² distinctly name the plants and these methods :—

'*Kanthal* (Jack fruit tree), *Asoka*, *Kadalī* (plantain), *Jambu*, *Lakoocha*, *Dadima*, *Drakshya*, *Palivata*, *Vijapura* (*Matulanga*), *Atimukhtaka* — these are the plants to be propagated by means of cuttings besmeared with cowdung (एते द्रुमाः काण्डा रोप्याः गोमयेन प्रलेपिताः)

'Better than this method is the method of propagation by grafting. This can be done in two ways — the cutting of one plant is either inserted on the root of another plant, or on the stem of another plant (मूलोच्छेदेऽपि स्कन्धे रोपणोपाः परं ततः).''

'*Grafts* should be smeared with cowdung. For transplanting (स्कन्धे रोप्यारोपयेदित्यर्थः) the plants should be smeared from root to the top (शामूलस्कन्धपरितप्तानी) with ghee (clarified butter), sesame oil, the honey of the Khudra variety of the bee of the Ushira (*Andropo-*

1. On p. 62 of *Vanaspati* Dr. Majumdar refers to the various methods of propagation of plants, viz. (1) बीजम् by fruits and seeds, (2) मूलम् by roots, (3) स्कन्धम् by cuttings, (4) स्कन्धे रोपणोपाः by graftings, (5) अग्रपत्र by apical portions, (6) पर्णपत्र by leaves, (7) क्षीरपत्र (?) Here also Dr. Majumdar refers too soon to the *Bṛhatsamhita* passage regarding grafting (chapter 34 of *Bṛhatsamhita*, stanza 6).

2. Vide p. 303 of *Bṛhatsamhita* (Calcutta, 1865) :—

'पनरातोच्छेदलोचिभ्युल्लङ्घनोद्भिदाः ।
काण्डापालोचनक्षिप बीजपूरादिमुक्तकाः ॥४॥
एते द्रुमाः काण्डा रोप्याः गोमयेन प्रलेपिताः ।''

3. *Ibid.*—''मूलोच्छेदेऽपि स्कन्धे रोपणोपाः प्रयत्नतः ॥५॥''

(*Variants.*—D.N.—दृष्टेः E—काण्डोच्छेद without अन्ताः C—in the text तिर ततः ; E—परंतप, for प्रयत्नतः. It seems after the expl. that Cr. परं ततः.)

gōn Laniger or *Andropogon citratus*), the *Vidanga* (*Embelica ribes*) milk and cowdung.¹

The above reference to *grafting* recorded by Dr. Majumdar has been reproduced by Prof. R. Gangopādhyāya in his book on *Agriculture and Agriculturists in Ancient India*, Serampore, 1932, on page 69. In referring to this evidence Prof. Gangopādhyāya observes :—

Cutting and grafting :—

'The method of propagation by cutting and graftings was also known to India from very early times. The following lines from the *Bhatsamhita* (chapter 55) will be illustrative.'

We must try to record more evidence in support of the evidence of the *Bhatsamhita* regarding *grafting*² as practised in India about A. D. 500.

The reference to *grafting* in the *Bhatsamhita* is made 450 years later than Pliny's passage on grafting quoted by me and so far as I know it is the only reference advanced to prove the Indian knowledge of *grafting* prior to the use of the grafting method on Indian mango trees by the Jesuits of Goa about A.D. 1550. Are we to suppose that the art of grafting was known to Indians, say, up to A.D. 600 but later fell into disuse and consequently no references to it were made in the numerous literary works, medical or otherwise?

Any popular practice like *grafting* having a direct bearing on agriculture is not likely to remain silent if it was widely practised in all the

1. *Ibid* — "कनातवाखडिस्तिरे वासवाखारु हिमामये ।

वर्षागमे च सुस्वचान्वादिक् प्रक्षिरेपेत् ॥६॥

पुत्रोपरितिक्षोत्रिष्वक्षोरोरमे ।

वामुलस्वपित्तानां धम् कम्पक्षिरेपेत् ॥७॥"

2. Compare the following remarks about *plastic surgery* of Indians on p. 178 of *Arjun Medical Science* by the Thakore-Sahel Gondal, London, 1896 :—

'They (Indians) were experts in forming new ears and noses. This operation has been practised for ages in India, where cutting of the nose and ears was a common punishment, and "Our modern Surgeons have been able to borrow from them (Hindoo) the operation of *rhinoplasty*" (Weber). On this subject Dr. Hirschburg of Berlin says: "The whole *plastic surgery* in Europe had taken its new flight, when these cunning devices of Indian workmen became known to us. The transplanting of sensible skinflaps is also an entirely Indian method."

provinces of India through centuries. The Indians developed large gardens¹ and practised horticulture for pleasure and profit as proved by the evidence of Jain, Brahmanical and Buddhist texts. We must, therefore, make a thorough search in these and allied texts and see if there is any additional evidence about *grafting* to corroborate the *Byñtsamhiya* reference noted above.

As the art of *grafting* is connected with horticulture we have to trace its history in the history of the Plant lore of Assyria and Egypt,² which is earlier than the Plant lore of the Greeks and Romans. The Assyrians cultivated fruits in the alluvial plain deposited by the Tigris and Euphrates³ rivers. Agriculture developed early in Assyria and was successfully prosecuted for many centuries. When and where the Assyrians got their crop plants is not known. Some were indigenous while others came from the Iranian plateau. In addition to cereals the Assyrians cultivated fruits, including *apricots, figs, olives, pomegranates, quinces, and grapes*. The Egyptians began the cultivation of food-plants 'possibly ten thousand years ago'. The records of the botanical achievements of the Egyptian are scanty. What we know has been obtained indirectly from the pictures on the walls of tombs and the funeral wreaths and fragments of plants preserved in these tombs. *Herodotus*, the Greek historian, travelled in Egypt about 465 B.C. and recorded an account of the cultivation of crops and fruits as he observed it personally. In addition to cereals the Egyptians cultivated plants such as *beans, lentils, radishes, melons, onions and garlic*. *Herodotus* mentioned several of them as articles given to labourers who constructed the Great Pyramid. Many ideas of the *Materia Medica* of the

1. See p. 54 of *Arthashastra* (Eng. Trans. by Shama Sastri, Mysore, 1929), chap. on 'Buildings within the Fort'.

'Families of workmen may in any other way be provided with sites befitting their occupations and field work. Beside working in flower gardens, fruit gardens, vegetable gardens and paddy fields allotted to them, they (families) shall collect grains and merchandise in abundance as authorized.'

Prof. Reed in his *Plant Sciences* (pp. 113 ff.) deals with the history of (1) *Roman Gardens*, (2) *North European Gardens* (from the time of Charlemagne onwards), (3) *Post-Renaissance Developments in European Gardens*, and (4) *Plant Introductions*.

2. Vide pp. 8-15 of *Plant Sciences* by H. S. Reed.

3. Vide the *Description of Mesopotamia and Baghdad written about 900 A.D.* by Ibn Serapion in Arabic (article in *J.R.A.S.*, 1895, by Guy le Strange).

The Arabs inherited from the Persians the system of canalization, which joined the lower courses of the *Euphrates* and the *Tigris* making the *sawad* or alluvial plains of the richest countries of the East.—*Yakut* (A.D. 1225) says that *Najibin* (Roman *Nisibis*) was celebrated for its white roses and its 40,000 gardens. *Dates, oranges, lemons* were grown at *Jabal Barimma*.

Egyptians appear to have been borrowed later by the Greeks. The oldest Egyptian medical papyrus was written about 1900 B.C. This record implies a long development of Egyptian botany and medicine probably from 3000 B.C. The Egyptians domesticated plants or introduced them from *Chaldaea*.

The foregoing points about the Egyptian and Assyrian plant lore noted by me from Prof. Reed's book on the *History of Plant Sciences* lead us to inquire: Was the art of *grafting* practised by the Greeks and Romans inherited by them from the Assyrians and Egyptians? My cursory perusal of Reed's book has not been successful in locating an exact answer to this query in his most scholarly account of the history of the Plant lore of the ancients, though it is possible to suppose that the Greeks, who borrowed some ideas from the Egyptian *Materia Medica*, may have borrowed the art of *grafting* from them or from the Assyrians, who were pioneers in horticulture many centuries prior to the blossoming of Greek culture and civilization.

We in Western India have been cultivating the grafted mangotrees for more than 100 years and eating their fruit every season but the history of the art of *grafting* plants, which has revolutionized horticulture during the last 2,500 years, is absolutely unknown to us. I have, therefore, recorded in this paper some facts about this history and am sure they will be supplemented by other scholars with references to *grafting* in India and foreign sources. I would specially welcome the evidence of *Pehlvi*, *Persian* and *Arabic* texts on the art of *grafting* from scholars who have made a close study of these texts, both published and unpublished. The following table will show at a glance the chronology of references to *grafting* recorded in this paper:—

Chronology.	Source.	Reference G=grafting.
B.C. 37—285	Theophrastus (Greek, father of botanical science)	Refers to G in his <i>The Causes of Plants</i> . Theophrastus was a pupil of Plato and Aristotle.
B.C. 70—A.D. 19	Virgil (Roman poet)	Refers to G of nuts, apples and cherries (<i>Georg.</i> II, 69) according to Pliny.
A.D. 23—79	Pliny the Elder (Roman)	Refers to G 'at its highest point' in his <i>Natural History</i> (Book XVI). He also refers to many Indian plants like <i>banjan</i> , <i>bonina</i> , <i>flax</i> , <i>pepper</i> , <i>ginger</i> , etc.
c. A.D. 500	Varāhamihira (<i>Bṛhat-samhitā</i> , chap. 54, verse 6)	Refers to G in his remarks on plant propagation.
Between A.D. 600 and c. 1100	<i>History of the world</i> by Davies	Refers to G practised by Mohammedans (during the 500 years following the death of Mohammed). They introduced many plants into the West from the East. They were indebted in this respect to <i>Greece</i> , <i>Persia</i> and perhaps <i>India</i> .

Chronology	Source	Reference Grafting
A.D. 1483	Shorter Oxford Diction. ary	Usages of the term 'graft' dated 1483, 1624, 1624, 1616 (grafted), and 1654 (grafted—hand saw used in grafting).
A.D. 1498	Portuguese contact with India	Picture of <i>graftage</i> in a printed work.
A.D. 1548 Between A.D. 1550 and 1573	P. Crescenius (Basil. 1548)	Jewels of Goa practice G on Indian mango plants and produce some new varieties of mangoes.
A.D. 1624—1684	Edme Mariotte (of France)	He observed that the sap of the original trunk acquires different qualities in each graft.
A.D. 1663	Bernier's Travels	Bernier's praise of Goa mangoes.
A.D. 1673	Fryer	Praises Goa mangoes.
A.D. 1727	A. Hamilton	Describes Goa mangoes as largest and most delicious to the taste.
A.D. 1794	Edward Moore (Narrat- ive of the operations, etc., London, 1794, p. 306)	Refers to Goa mangoes: 'mangoes—An exquisi- tely delicious fruit of which the finest specimen grows in Bombay, called the <i>Mangoon</i> mango. Goa produces several fine species of this super-excellent fruit which in that article is the only superiority India can boast over England.
A.D. 1793—1801	Muhammad Karim (Sa- wanihita-Mumukshu). Eng. Trans. by S.M. H. Nainar. Part I, 1940, Madras Univer- sity, Islamic Series, No. 5, page 151)	Nawab Walajah II of Carnatic visits the garden of Lord Edward Clive, Governor of Madras, the son of the celebrated Lord Clive. Edward Clive became Governor of Madras in 1798. His garden is described as 'full of mango trees and grafted varieties of the best quality.'

P.S.— Since this paper was drafted I have received the following information regarding grafting from two learned friends of mine :—

(1) Rao Bahadur K. V. Rangaswami Aiyangar writes on 3-4-1946 from Delhi :—

'As regards grafting, the Tamil name for it is *offu*, i.e. gumming up or dovetailing, which is descriptive. The mango known to Tamil literature is the ordinary ungrafted one. I believe the Musalmans introduced it in South India. The process of rejuvenation and acceleration of growth that grafting causes could not have been missed by our poets, when they wanted figures of speech, if it was known to them. Till recently the only grafted plant was the mango..... Most grafted mangoes now bear Arabic names.'

1. I shall deal with the reference in detail in my proposed paper on the history of grafted mangoes in India.

(2) Mr. M. S. Randhawa, I.C.S., Imperial Council of Agricultural Research, New Delhi has kindly sent to me on 16-4-1946 some extracts about mango cultivation and grafting. I quote below the following extracts gathered by Mr. Randhawa about the antiquity of the Art of grafting :—

'The art of grafting is an old one. Readers of the Bible may recollect St. Paul's sustained simile of the *grafting* of wild olive tree on to the good olive tree, *Romans*, XI-17—24'.
(Firminger's *Manual of gardening*, p. 86.)

'*Grafting* is of ancient origin as a horticultural practice. In his *Natural History* (Vol. 2), Pliny about 2000 years ago wrote about it as common practice.'

(Kains and Mc Questen—*Propagation of Plants*, p. 264).

'PLINY, writing before the birth of Christ, recognized *graftage* as horticultural practice and it is known that it was practised before his time. *Columella*,¹ who died shortly after the birth of Christ, mentioned certain kinds of graftage, particularly the *bark graft*, *cleft graft* and *patch bud*, which he said had been practised by the ancients.'

(Adrianse and Brison—*Propagation of Horticultural Plants*, p. 149.)

I am extremely thankful to Rao Bahadur Aiyangar and also to Mr. Randhwa for their interest in the subject of this paper. It is really a matter for pride that Randhwa should answer my queries regarding *grafting* with wonderful alacrity and promptness in spite of his administrative preoccupations.

1. *Columella*, L. Junius Moderatus was a native of Cadiz in Spain and a contemporary of Seneca. He lived in Rome and wrote a work on agriculture (*De Re Rustica*) in 12 books which is still extant. (Vide p. 162 of *Smaller Classical Dictionary* by Smith, Every Man's Library, London, 1913).

In the *Bible* (New Testament, *Romans*, XI, 17—24) the word *graft* is used for *grafting* as will be seen from the following extract :—

'24. For if thou wert cut of the olive tree which is wild by nature and wert grafted contrary to nature into a good olive tree : how much more shall these, which be the natural branches, be grafted into their own olive tree ?'

50. References to Grafted Mangoes in India between A. D. 1550 and 1800*

In 1946 I published an article¹ on the *History of the Art of Grafting Plants* (between c. B. C. 500 and A. D. 1800), in which I have recorded references to *grafting* from the time of Theophrastus onwards from Indian and foreign sources. Among these references I have noted the following references from Indian sources :—

- (1) Varāhamihira (c. A. D. 500) is supposed to refer to *grafting* in his *Bṛhat-saṃhitā* (Chap. 54, stanza 6) in his remarks on plant propagation.
- (2) Edward Clive, the son of the celebrated Lord Clive, became Governor of Madras in 1798. His garden was "full of *mango* trees and *grafted* varieties of the best quality" (see p. 151 of English Trans. of *Sawānīḥat-i-Mumtāz* of Muhammad Karīm, Part I, 1940 — Madras University Islamic Series, No. 5).
- (3) The Jesuits of Goa practised *grafting* on Indian mango plants between A. D. 1550 and 1575 and produced some new varieties of mangoes.

Except the references noted above I have no material about *grafting* in India. If the art of *grafting* was current in Varāhamihira's time (C. A. D. 500) why should there be no continuity of evidence about it in Indian sources? On the contrary the following extract from Bernier's *Travels*² in the Mogul Empire (A. D. 1656-1668) clearly states that the gardeners in Kashmir "do not understand the culture and *grafting* of trees":—

In his description of the fruits of Kashmir Bernier observes :—

"The fruit is certainly inferior to our own, nor is it in such variety; but this I am satisfied is not attributable to the soil but merely to the comparative ignorance of the gardeners, for they do not understand the culture and *grafting* of trees as we do in France. I have eaten, however, a great deal of very excellent fruit during my residence in *Kachemire* (Kashmir), and should entertain no doubt

**Journal of University of Guwahati*, Vol. X, No. 1 (Art.), pp. 81-93.

1. *Indian Culture*, Vol. XIII, No. 1 (July-Sept. 1946), pp. 25-34.

2. *Travels in the Mogul Empire*, Constable, London, 1891, p. 397. G. 11.

of its arriving at the same degree of perfection as that of Europe if the people were more attentive to the planting and soil of the trees and introduced grafts from foreign countries."

I have referred to the *grafting* practised by the Jesuits of Goa on Indian mango trees between A. D. 1550 and 1575. They produced different varieties of grafted mangoes which were sold in India in the 17th century. The following evidence about these varieties from the *Travels* of European travellers is noteworthy :—

- (1) Giovanni Francesco Gemelli Careri was born of a noble family of Radicena (Calabria) in A.D. 1651. He was in India in 1695. His *Travels*¹ in several volumes were published in Italy between 1699 and 1728. In these *Travels* Careri has recorded a chapter on the Fruit and Flowers of Indostan². Speaking of the varieties of mango Careri observes :—
 "Some are called *Mangas Carreiras* and *Mallaias*, others of *Nicholas Alfanzo*, others *Satias*, and others by other Names, all of them exceeding any European fruit in delicate taste."
- (2) Another traveller from Italy, Manucci (A. D. 1639-1717) was in India between A. D. 1656 and 1717. In his *Travels*, Vol. III, p. 180, he refers to several varieties of Goa mangoes as follows :—
 "The best mangoes grow in the island of Goa. They have special names which are as follows :—
 mangoes of *Niculao Affonso*, *Malaiasses*, *Carreira branca*, *Carreira vermelha*, of *Conde*, of *Joani Pereira*, *Babia* (Large and round) of *Araup*, of *Porta*, of *Secreta*, of *mainato*, of *Our Lady*, of *Agua de Lupe*."⁴

In the article on *Mango* in *Hobson-Jobson* (by Yule and Burnell, London, 1903, pp. 553-555) dated references to mango are recorded. Among these references I find the following reference to Goa mangoes, which are evidently grafted mangoes :—

- (1) A.D. 1663 — Goa mangoes are excellent, says Bernier (see extract from Bernier's *Travels* quoted by me already).

1. Edited by S. N. Sen. New Delhi, 1949 (Indian Record Series). Introduction, pp. XXI-XXV.

2. *Ibid.*, pp. 199-206.

3. *Ibid.*, p. 202.

4. See note No. 37 by Dr. S. N. Sen, on p. 358 (*ibid.*). Dr. Sen remarks :— "of the four varieties mentioned by Careri only one the *Satias* does not occur in Manucci's list, unless it is to be identified with *Secreta*. *Niculao Affonso* otherwise known as *Afua* or *Hofua* still retains its popularity and fetches a very high price."

- (2) A. D. 1673 — Fryer also refers to the Goa mangoes as the best ones.
- (3) A. D. 1727 — A. Hamilton says:—"The Goa mango is reckoned the largest and most delicious to the taste of any in the world and I may add the wholesomest and best tasted of any fruit in the world."

It will be seen from all the data recorded above that the art of grafting was introduced into Indian horticulture only after about A. D. 1550 but its operation was confined to Goa say between A. D. 1550 and 1790. It was absent in Kashmir in the 17th century as vouched by Bernier's remarks quoted above. It appears at Madras about A. D. 1798, when it was introduced there by Clive, the Governor of Madras.

51. The Plant Lore of Ancient India*

In any history of the plant sciences of the world on a comprehensive scale the contribution of ancient India deserves a distinct place but in the absence of special monographs¹ dealing with the history of each nutritive or medicinal plant, this contribution hardly gets recognition in standard books on the plant sciences published outside India. This fact was pointedly brought to my notice by Dr. Birbal Sahni, F. R. S., our famous botanist of international reputation, who happened to read with appreciation my paper on the *History of the Fig (Anjira, Ficus Carica)*² and desired me to publish similar studies on the history of other Indian plants of medicinal or nutritive value. He also brought to my notice a valuable book on the *History of Plant Sciences* by Howard S. Reed,³ a review of which he published in 1942 in *Current Science*, Calcutta (p. 369). While this book has two chapters⁴

On the history of the plant lore of the ancients where Egypt and Assyria, Greece and Rome, China and early America are all adequately treated ... one looks in vain for a bare mention of Ancient India which was certainly well abreast of the times and gave much that the West has assimilated, though not always gracefully acknowledged.

Dr. Sahni rightly observes that the "Retrospective Period" (Chapter IV of Reed's book) was retrospective only so far as Occidental nations were concerned.

Side by side with my numerous studies⁵ pertaining to the history of

**Aryan Path*, March 1947, pp. 1-4.

1. See *Anjira* (*Ficus Carica* or Fig), Hindi. Bharatiya-Dravya Guna Granthamala No. 2, Vijnana-Parishad, Prayag, 1943. As. 12; *Somtha* (Dry Glogiber), Hindi. (B. D. G. Granthamala No. 3, Bhargava Pustakalaya, Benares, 1945. As. 12; *Triphala* (Three Fruits), Hindi. (Vijnana Parishad, Prayag, 2nd Edition, 1944. Rs. 2/4). All by PANDIT RAMRAN BHOS, Ayurvedalankara. (Available from him at the Himalaya Herbar Institute, Badami Bagh, Lahore (Panjab, India).

2. *Vide The New Indian Antiquary* (1941-2). Vol. IV, pp. 125-136.

3. (*Chronica Botanica* Co., Waltham, Mass., U. S. A. 1942).

4. *Ibid.*, pp. 7-30.

5. See *Bibliography* of my 202 Research Papers published in 1941: Items Nos. 15, 17, 20, 21, 23, 42, 60, 96, 100, 112, 115, 131, 135, 138, 151, 165, 170, 171 and 198 pertaining to Indian medicine. Other papers published since 1941 will be included in my *Revised Bibliography*, to be published shortly.

different branches of Sanskrit learning, I have been studying during the last fifteen years the history of Indian medicine and allied subjects and have published about forty papers¹ on this history in several Oriental journals. I, therefore, lost no time in studying Reed's book and was convinced of the justice of Dr. Sahni's observations on it, both in his review and in his letter of 12th January 1943.² This incentive to my studies was further enhanced by inquiries about the history of Indian crops from Dr. B. S. Kadam, then Assistant Agricultural Commissioner to the Government of India and now Director of Tobacco Research, deputed by the Government to the U. S. A. and Canada for further study of this subject. Last but not least came the inquiry from Dr. Sadgopal, chief chemist of the Hindustan Aromatic Company of Naini (Allahabad) about the history of Indian aromatics, which involved a study of the history of aromatic plants and their products. The cumulative effect of all these inquiries coming from responsible scholars was to encourage me to continue my studies in these subjects with greater zest. Some results of these studies have already been published in my papers on the "History of *Jawar* (*Holcus Sorghum*),"³ "History of *Cupaka* (*Cicerarietinum* or Gram),"⁴ and the "History of Indian Cosmetics."⁵

My studies in the history of Indian plants on the strength of Indian sources have convinced me that so far this branch of Indology has been almost neglected by our Indologists and consequently our ancient Indian plant lore, for a systematic history of which there is abundant material in Jain, Buddhist and Brahmanical texts, has remained unnoticed in responsible Oriental journals during the last hundred years or so.

1. A complete list of these papers is given in my Introduction to an edition of the *Caraka Samhita* to be published at Jamnagar by Dr. P. M. Mehta, Chief Medical Officer of the Jamnagar State, on behalf of his Ayurvedic Association.

2. Dr. Sahni wrote to me: "I have read with much interest your Note on the 'History of the Fig (*Ficus Curica*).'" I think you would be doing a great service to Indian Botany if similarly you were to work out the history of our knowledge of other common Indian plants of medicinal or nutritive value. Our own ignorance concerning this subject is colossal and we can scarcely blame the Western writers if they ignore the ancient Hindu knowledge of the plant sciences."

3. *Vide B. C. Low Volume, Part I*, pp. 142-158 (Calcutta, 1945, edited by myself and friends).

4. *Vide Annals of the Bhandarkar Oriental Research Institute, Poona* (1946), Vol. XXVI, pp. 89-105. Another paper on the "History of *Cupaka* (B. C. 100 to 1850 A. D.)" is to appear shortly.

5. *Vide Journal of the University of Bombay* (1945), Vol. XIV, Part 2, pp. 41-52 and *New Indian Antiquary* (February-March 1945), Vol. VII.

In recent years a serious attempt to meet this deficiency has been made by Dr. G. P. Majumdar of Calcutta by the publication of his numerous papers and three important books.¹ Dr. Majumdar's studies are very valuable for all serious students of ancient Indian culture as they reveal this culture in plant perspective. In fact a perusal of these studies will not fail to impress the reader with Dr. Majumdar's spirit of reverence for plants, as the indebtedness of humanity to plants is too deep for words and too mystic to be understood by our present-day botanists. It is no wonder that certain plants were worshipped by the ancient Indians and are worshipped in India today.

The foregoing lines will, I believe, amply show the necessity of studying the history of ancient Indian plant lore on the strength of original sources, both Sanskrit and non-Sanskrit. For such a history the efforts of one or two scholars will be of no avail. Personally I have come to realise the importance of this study rather too late in my research career of thirty years. I am, therefore glad to find that a scholar from Lahore, Pandit Ramesh Bedi, *Āyurvedśāstrī*, has been independently working in this field and has already published the three learned monographs in Hindi under notice, for the benefit of students of Indian botany and Indian medical science.

Their author has not only studied *Āyurveda* thoroughly but has been practising it at Lahore. He has planned a series of monographs on many plants of medicinal value, of which these three give us a fair idea. Pandit Bedi was for six years Superintendent of the Botanical Gardens of the Gurukul University at Kangri (District Saharanpur, U.P.) and in this capacity he made a close study of Indian medicinal plants. It is no wonder, therefore, that his books should be very highly spoken of by professors of *Āyurveda* in the Gurukul University and the Hindu University, Benares, as also by eminent *Āyurvedic* physicians like Acharya Yadavji Trikamji of Bombay and others.

In these monographs — on *Ājītra*, *Somśha* and *Triphalā* — the last-named on the fruits of three plants, *Harad* (*Terminalia Chebula*), *Baheda* (*Belaric myrobalan*) and *Amḷa* (*Emblīc myrobalan*) — Pandit Bedi records exhaustive information on such points: as the names of the plant in Hindi, Sanskrit, English and Latin and in different modern Indian languages; the plant's original habitat and where it is grown at present in India; its botanical description; its history, whether indigenous to India or imported

1. These books are (1) *Vanaspathi* (Calcutta University, 1927); (2) *Uphavana-Vinoda*, a treatise on arboreal horticulture. (Indian Research Institute, Calcutta, 1935) and *Somśha Ashtaka of Ancient Indian Civilization*. (Author, Calcutta, 1938).

and incorporated into the Indian *materia medica* ; its varieties and their medicinal properties ; its chemical analysis, showing its therapeutic value ; its properties as specified in *Āyurvedic* texts ; the current uses of the different parts of the plant, and the seasons at which the parts of medicinal value should be removed and stored ; the proportions in which the parts of the plant are to be used in medical preparations ; the processes of manufacturing medicines from the plant ; the general therapeutic value of the different parts and the effect of medicines prepared from the plant on the different parts of the human body ; the testing of these medical preparations in the light of modern medical research ; instructions for cultivation of the plant ; its economic value and its importance in national commerce ; and gives a bibliography pertaining to the plant with reference to the foregoing aspects. These monographs are prepared by Pandit Bedi to enable him later to publish an encyclopædic work on Indian *materia medica* under the title "*Bharatiya Dravya-guṇa*."

This is really a scholarly approach, as no lasting literary edifice can be built unless all its bricks are properly shaped and well baked in the kiln of our investigation. I feel no doubt that these monographs will prove useful not only to the students and professors of *Āyurveda* but also to laymen, whose knowledge of Indian medicinal herbs is at present much confused, in the absence of authoritative monographs on each of these herbs, fully documented with extracts from standard ancient *Āyurvedic* texts and other literature, which give these healers of mankind their proper scientific and cultural perspective.

Though written in Hindi, these monographs deserve to be translated into English for wider circulation, as medicine is not the preserve of one nation but is for mankind in general. If disease is concomitant with life on this globe, the Science of life (*Āyurveda*) which provides remedies for disease in all its varieties, is the concern of the entire humanity. We live now in the age of atom-bombs, aeroplanes and radios and not in the age of *Cayuka* and *Suśruta*. The dissemination of useful knowledge is a sacred obligation to be discharged by the scholars of the whole world and any medium which effects the widest possible dissemination of this knowledge deserves to be used for this purpose without any pride or prejudice.

Pandit Bedi's monographs, as mentioned, have already received scholarly approbation. His *Triphala* has won him the award of the Nawab Sir Jamālkhān Gold Medal of Rs. 250/- from the All-India *Āyurvedic* Congress. Let me hope that these tokens of appreciation from brother-workers in the *Āyurvedic* field will encourage Pandit Bedi to continue his valuable monograph series (*Bharatiya Dravya-guṇa Grantha-mālā*) so that we shall have before long an ~~exhaustive~~ knowledge of our ancient

Indian plant lore properly evaluated in the light of modern botanical and medical writings, a list of which Pandit Bedi has recorded in each of these monographs.

To a student of the pure history of Indian plants like myself, Pandit Bedi's monographs will prove valuable as they contain under one cover many textual data, facilitating investigation into a plant's history by bringing together the available historical sources in all countries. For some of Indian plants have migrated far from their native habitat and are recognized as respectable residents of the modern civilized world, like the human *confrères* of the present-day nations. It is the business of the historian to investigate this migration of plants, which will be as enchanting a story as that of human migrations when it is completely studied and recorded with care and patience by a band of scholars working in unison in different parts of the world.

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